



Indigenous technical knowledge on coleus crop cultivation

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ABSTRACT

This study was conducted at Salem district of Tamil Nadu. Ten villages were selected by using simple random sampling procedure. One hundred twenty coleus growers were selected from ten selected revenue villages for the study. The Indigenous technical knowledge of coleus plant cultivation was collected by participatory mode of focused group interview with ten groups. The respondents were asked to indicate the problems faced by them, while cultivating coleus crop. The problems enlisted were interpreted based on percentage analysis. There were eleven indigenous technical knowledge (ITK) documented with respect to coleus crop cultivation of which four indigenous technology were pertaining to crop production and seven pertaining to crop protection aspects. With respect to crop protection, the chemical secret from the sorghum root will help to solve the potash in deficit the soil that might be the probable reason for 91.67 per cent of the respondents reported the cultivation of coleus crop immediately after the harvest of sorghum which will increase the tuber yield of crop. There were 17 constraints reported by the respondents. Most important constraints were lack of fixed price policy for medicinal plant like coleus by the government, insufficient research input management for medicinal crop based cropping system, inadequate storage facilities, lack of knowledge on processing and lack of co operatives for marketing as expressed by 52.00-70.00 per cent of the respondents.

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INTRODUCTION

India is renowned with bio-diversity with different agro-climatic conditions prevalent over the country. It is endowed with 15000 to 18000 flowering plants and are being used for traditional system for medicine. Estimates state that there are more than 7500 species of medicinal plants which are being utilized by about 4600 ethnic communities for both human and veterinary care (Vijayalakshmi, 1999). These medicinal plants are utilized not only in Ayurveda but also in Siddha, Unani, Homeopathy, Tribal medicine etc. India is known from time immemorial for its enormous herbal medicinal plant resource (Ghule, 2004). Medicinal coleus (*Coleus forskohli* Briq.) is one of the most important medicinal crops of the future as its pharmacological properties have been discovered only recently.

It belongs to the family Labiateae, the genus coleus has 150 species of which *C.amboinicus*, *C. forskohlii*, *C. spicatus* and *C. malabaricus* are naturally occurring species. *C. forskohlii* is the only naturally

occurring species to have tuberous roots. The plant is well known throughout the country and is known by various local names, as Pashan Bhendi in Sanskrit, Patharchur in Hindi, Garmalu in Gujarati, Maimul in Marathi and Marunthukurkan Kilangu in Tamil.

METHODOLOGY

The study was conducted at Salem district of Tamil Nadu. Ten villages from Attur Taluk were selected by using simple random sampling procedure. One hundred twenty coleus growers were selected from ten selected revenue villages for the study. Indigenous technical knowledge operationalised as the knowledge prevailing among the coleus growers over the years about the concerned scientists in the field to know the rationality behind the documented indigenous technical knowledge. The indigenous technical knowledge of coleus plant cultivation was collected by participatory mode of focused group interview with ten groups. Each group comprised of twelve growers. Interview was made by participatory mode

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to document indigenous technical knowledge related to coleus cultivation. The respondents were asked to indicate the problems faced by them, while cultivating coleus crop. The problems enlisted were interpreted based on percentage analysis.

OBSERVATION AND ANALYSIS

The findings of the study have been discussed in detail as under:

Indigenous technical knowledge (ITK):

It could be observed from Table 1 that there were eleven Indigenous technical knowledge (ITK) as documented with respect to coleus crop cultivation. Of which four indigenous technology were pertaining to crop production and seven pertaining to crop protection aspects (Table 1).

Constraints encountered by the coleus growers:

With respect to crop protection, the chemical secret from the sorghum root will help to solve the potash in the soil might be the probable reason for 91.67 per cent of the respondents reported cultivation of coleus crop immediately after the harvest of sorghum will increase the tuber yield of crop (Table 1) In case of plant protection aspects, out of seven indigenous knowledge, five relate with nematode control and the remaining related to control of root rot incidence. The secretion of chemical from the roots of sesame, sunhemp, marigold and coriander will control the incidence of nematode. These findings

are in conformity with the report of Somasundaram (1976). Further, while harvesting the cowpea at 20-25 days of duration, nematode also go out of the field along with the roots of cowpea plants. Due to the above fact, 93.33 per cent and 51.67 per cent of the respondents reported the cultivation of sesame, sun hemp, marigold and coriander as the first crop followed by coleus will reduce the incidence of nematode and cultivation of cowpea up to 20-25 days duration and will help to remove the nematode from the field, respectively.

Constraints encountered by the coleus growers:

There were 17 constraints reported by the respondents. Most important constraints were lack of fixed price policy for medicinal plants by the government, insufficient research in input management for medicinal crop based cropping system, inadequate storage facilities, lack of knowledge on processing and lack of co-operatives for marketing expressed by 52.00-70.00 per cent of the respondents (Table 2). The contributing reasons for problem of fixed price policy was the varying economics and fluctuating demand and supply in the regional, national and international levels.

This indicates that there is a need to open co-operative marketing centre at Panchayat level especially for medicinal plant produce. Regarding price fixation problem, in this connection government has to take step to formulate comprehensive policy measure for price fixation. This finding is in conformity with the observations made by Deepa Bharathi (2003).

Table 1 : Indigenous technical knowledge on coleus cultivation (n=120)

Sr.No.	Indigenous practices	Number	Per cent
1.	Cultivation of coleus crop immediately after the harvest of sorghum will increase the tuber yield of coleus.	110	91.67
2.	Neem cake 10 kg +ground nut cake 10kg + DAP 10 kg \ acre immersed in water (9200 liter) for 3 to 4 days and applied through irrigation water will increase the yield of this crop.	60	50.00
3.	Potash 10 kg +DAP 5kg +Neem cake 5kg +Groundnut cake 5kg /acre kept in 200 liter of water for 4-5 days. This can be applied as top dressing through pot along with irrigation water will give quick effect of fertilizer to the crop.	62	51.67
4.	Cloudy condition at the time of transplanting of coleus seedlings will increase the better initial growth of roots.	52	43.33
5.	Cultivation of sesame, sunhemp, crotalaria, marigold and coriander as a first crop followed by coleus will reduce the incidence of nematode.	112	93.33
6.	Coleus crop is not recommended immediately after the cultivation of brinjal and tomato.	63	52.50
7.	Incidence of root knot nematode would be higher in the coleus crop, if the previous crop is turmeric.	60	50.00
8.	Incidence of root knot nematode would be higher in the coleus crop, if the previous crop is tapioca which was affected by root rot.	80	66.67
9.	Cultivation of cow pea (2,3kg/acre) up to 20-25 days duration will help to remove the nematode from the field.	62	51.67
10.	Cultivation of paddy as previous crop will reduce the incidence of nematode from the field.	58	48.33
11.	Application of Asafoetida @ 1/2 kg /acre in the form of liquid for two times controls the nematode problem.	63	52.50

Table 2 : Constraints encountered by the coleus growers

Sr. No.	Constraints	No.	Per cent
1.	Lack of quality seeds	12	10.00
2.	Improper selection of seed materials	18	15.00
3.	Lack of agencies to supply good quality seeds	7	5.83
4.	Lack of irrigation facilities	3	2.50
5.	Lack of plant protection measures	9	7.50
6.	Less drought tolerant nature of plants	2	1.67
7.	Soil problems due to medicinal plants cultivation	8	6.67
8.	Yield loss due to erratic climatic conditions	38	31.67
9.	Non - availability of labour in time	9	7.50
10.	High cost of labour	27	22.50
11.	Insufficient research in input management for medicinal based cropping system	81	67.50
12.	Inadequate storage facilities	64	55.33
13.	Lack of knowledge on processing	67	52.83
14.	Lack of proper marketing channel	44	36.70
15.	Lack of knowledge on export procedure	57	47.50
16.	Lack of fixed price policy for medicinal plant by the government	85	70.83
17.	Lack of co-operatives for marketing	63	52.50

Further, lack of knowledge of processing and storage facilities as a constraints were expressed by 52.83 per cent and 53.33 per cent respectively. The probable reason might be lack of knowledge on value addition of produce. Other constraints expressed by the respondents were lack of knowledge on export, lack of proper marketing channel, yield loss due to erratic climatic conditions, high cost of labour, improper selection of seed material and lack of good quality seeds (Table 2).

Conclusion:

It is concluded that trainings on value addition of coleus plant produce need to be imparted through Department of Horticulture and KVKs. It is recommended that to start the community storage centre exclusively for medicinal plants in areas with great potentials, so that the farmers who are deprived of this facility can utilize it by paying nominal pay. Research on management of coleus cultivation both on production and protection aspects in different cropping system are also warranted. It is suggested to encourage the cultivation of coleus. Department of Horticulture has to evolve concrete extension strategies to popularize the coleus medicinal plant cultivation.

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