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Knowledge level of farmers about the dicoccum wheat cultivation practices in Belagavi district, Karnataka

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Abstract

The present study was undertaken in Gokak and Raibag talukas of Belagavi district of Karnataka state during 2017-18 to examine the knowledge level of farmers about the dicoccum wheat cultivation practices. Primary data was collected from 150 dicoccum wheat growers. The results indicated that 38.00 per cent of the dicoccum wheat growers belonged to medium knowledge category, followed by 32.00 and 30.00 per cent of the dicoccum wheat growers belonged to high and low knowledge category, respectively. Cent per cent of the respondents had knowledge about Kapli variety of dicoccum wheat and none of the respondents had knowledge about DDK-1025 and DDK-1029 variety. However, cent per cent of the respondents had knowledge about sowing time. In case of seed rate and spacing more than two-fifth (40.67%) and 34.00 per cent of the respondents had knowledge as per the recommendation, respectively. Further, farming experience exhibited positive and highly significant relationship at one per cent level of probability with knowledge level of dicoccum wheat growers. While, the variables education, mass media exposure, economic motivation, annual income and extension contact exhibited positively significant at five per cent level of probability level with knowledge level of dicoccum wheat growers.

Keywords: Knowledge level, dicoccum wheat, recommended practices

Introduction

Wheat is the staple crop in more than 40 countries and provides more than 60 per cent of calories in human diet together with rice and maize. Globally, India is second largest wheat producing country with an area of 29.3 million ha and production of 95 million tonnes during 2015. Although India has large wheat biodiversity where all the three major wheat species namely, *Triticum aestivum*, *Triticum durum*, *Triticum dicoccum* are grown commercially. Out of this, 60 per cent area of wheat falls under *Triticum aestivum*, 30 per cent falls under *Triticum durum* and 10 per cent under *Triticum dicoccum*.

Dicoccum wheat was largely cultivated during seven millennia in the Middle-East, Central and West Asia and Europe. It has since been largely replaced by hull-less species and exists now only as a minor crop, with the exception of some countries and like India, Ethiopia and Yemen, where its grain is used for preparing traditional or specialty foods. Due hard and vitreous nature of its grains, milling quality is very superior especially for semolina preparation. Semolina of dicoccum wheat needs less cooking time and has more cooking tolerance. "Products of this variety are softer, tasty and have high satiety value. These nutritional and functional qualities make dicoccum wheat more suitable than durum wheat for the manufacture of dense foods and other local semolina products and are also more suitable as therapeutic food".

University of Agricultural Sciences, Dharwad, looking at the importance of this species, the University had initiated a program in development of newer semi-dwarf, management responsive varieties in the background of local species (quality attributes). "These new species besides possessing high yield potential of 42 to 45 quintals per hectare also possess resistance to biotic and abiotic stresses. As a result of systematic research effort, the world's first semi-dwarf dicoccum variety- DDK -1001 was released during 1996. The other varieties released by University are DDK-1009, DDK-1025 and DDK-1029".

The total area and production of wheat in India is estimated to be 30.22 mha (3.22 mha dicoccum wheat) and 93.50 mt, respectively during the year 2016-17 (Anon., 2016a). In India, dicoccum wheat is grown in Karnataka, Southern Maharashtra, Sourashtra region of coastal Gujrat, parts of Tamil Nadu and Andhra Pradesh. Uttar Pradesh ranks first in area (9.63 mha) and total production (30.00 mt), while Punjab ranks first in productivity (4693 kg/ ha) and Haryana stands second (4624 kg/ ha) (Anon., 2016a).

In Karnataka, Belgavi stands first in dicocum wheat production with an area of 4,997.5 ha, followed by Bagalkot with an area of 3,079.2 ha. Better irrigation facilities in these states are responsible for higher yield. The investigation therefore has been analysed to examine the knowledge level of farmers about the dicocum wheat cultivation practices.

Methodology

The study was purposively conducted in Belagavi district of Karnataka state, as this district ranks first in area and production of dicocum wheat crop. *Ex post-facto* research design was used for the study. The Belgavi district comprises of ten talukas, among those Gokak and Raibag were selected based on the highest area and production. From each taluka, five villages were randomly selected. Viz. Kaujalgi, Hadginal, Lakshmeshwar, Talakatnal and Kulgod from Gokak taluk and Mugalkhod, Itnal, Khanadal, Savsuddi and Kankanvadi from Raibag taluk. Thus, totally 10 villages were selected for the study. From each selected village, 15 framers growing dicocum wheat were selected by simple random sampling procedure. Thus sample from each taluk was 75 making a total sample size of 150 respondents.

Knowledge level of the dicocum wheat growers was operationalised as the quantum of scientific information known to the respondents about dicocum wheat production. The "Teacher made test" suggested by Anastasi (1961)^[1] was employed to measure the knowledge level of respondents. All the important operations of dicocum wheat cultivation were listed separately in consultation with the experts. The questions and answers were carefully framed by referring to the package of practice of the University of Agricultural Sciences, Dharwad. The data generated were analysed and presented by using frequency, percentage, standard deviation, mean and Karl Pearson's correlation.

Results and Discussion

Overall knowledge level of dicocum wheat growers about recommended cultivation practices

A perusal of Table 1 indicates that 38.00 per cent of the dicocum wheat growers belonged to medium knowledge category, followed by 32.00 per cent of the dicocum wheat growers belonged to high knowledge category and 30.00 per cent of the dicocum wheat growers belonged to low knowledge category. More number of farmers with medium level of knowledge was influenced by the medium levels of annual income, mass media participation, risk orientation and economic motivation.

The above findings were partly supported by results in Sabi (2012)^[8].

Table 1: Overall knowledge level of dicocum wheat growers about recommended cultivation practices

Sl. No	Category	Frequency	Percentage
1	Low (Below 6.43)	45	30.00
2	Medium (6.43 to 7.70)	57	38.00
3	High (Above 7.70)	48	32.00
Mean=7.07 SD=1.49			

Knowledge level of wheat growers about individual recommended cultivation practices

Recommended varieties, sowing time, seed rate and spacing

It is observed from the Table 2 that cent per cent of the respondents have knowledge about Kapli variety and none of

the respondents have knowledge about DDK-1025 and DDK-1029. However, cent per cent of the respondents have knowledge about sowing time. In case of seed rate and spacing more than two-fifth (40.67%) and 34.00 per cent of the respondents have knowledge as per the recommendation respectively.

Seed treatment

It is clearly observed from the Table 2 that only 14.00 per cent of the respondents have knowledge about seed treatment with azospirillum.

Recommended quantity of FYM and time of irrigation

The results in the Table 2 showed that more than half (53.33%) per cent of the dicocum wheat growers have knowledge about recommended quantity of FYM. In case of irrigation large majority (88.00%) of the respondents know about time interval of irrigation in black soil and sandy loam soil and 78.66 per cent of the farmers have knowledge about irrigation during critical stages.

Recommended quantity of chemical fertilizers

It is evident from the Table 2 that 25.33 per cent and 22.00 per cent of the respondents have knowledge about the recommended quantity of the Nitrogen and Phosphorous respectively. However, negligible (9.33%) per cent of the respondents know about the recommended quantity of Potassium.

Types of fertilizer application

The data furnished in the Table 2 reveals that majority (84.00%) of the respondents know about Urea + DAP fertilizer application and negligible percentage of dicocum wheat growers have knowledge about complex fertilizer (2.66%), only urea (2.00%) and only DAP (1.33%) fertilizer application.

Micro nutrient application

Table 2 clearly showed that equal (7.33%) per cent of the respondents have knowledge about ZnSO₄ and Mixture nutrients.

Nutrient management

It is evident from the Table 2 that one-fifth (20.00%) of the respondents have knowledge about 50% N as basal + 50% N as top dressing application and none of the respondents have knowledge about entire N as a basal application.

Weed management

A perusal of Table 2 indicates that 22.67 per cent of the dicocum wheat growers know about the 2-4 D weedicide and none of the respondents have knowledge about the pendimethalin weedicide.

Pest management

It is interesting to note from the Table 2 that as high as 38.00 per cent of the respondents have knowledge about the aphid management and zero per cent of the respondents know about the termites and stem borer management.

Disease management

Table 2 also revealed that as high as 34.67 per cent of the dicocum wheat growers have knowledge about rust management.

The results from the Table 1 indicate the knowledge level of the respondents regarding recommended cultivation practices of dicoccum wheat. Recommended cultivation practices are very much necessary for efficient use of available resources to get optimum returns. The respondents were not having knowledge about high yielding variety like DDK-1025 and DDK-1029. They were cultivating traditional variety called kapli which is being preserved by the local farmers. Cent per cent of respondents have knowledge regarding proper sowing time but the knowledge about seed treatment and spacing is less. Very few have knowledge about micro nutrients, fertilizer requirement, nutrient management, weed management and pest management.

Package of practices published by the SAU's directs the farmers about the recommended practices to be followed by

the dicoccum wheat growers. Less awareness about such literatures and lack of interest were the constraints for getting knowledge about dicoccum wheat cultivation. Extension contact with agriculture scientists, officers of the departments and private company employees is the way to improve knowledge about dicoccum wheat cultivation among the farmers. But from the study it is revealed that majority of the respondents were not in contact with such extension workers. Majority of them having knowledge about sowing time, irrigation intervals and spacing as they possess experience about cultivation practices.

The above findings were partly supported by results of Biradar and Chandargi (2013)^[3].

Table 2: Knowledge level of dicoccum wheat growers about individual recommended cultivation practices (n=150)

Sl no.	Practices	Frequency	Percentage
1.	Varieties		
	a) Kapli (<i>Local</i>)	150	100.00
	b) DDK-1025	0	0.00
	c) DDK-1029	0	0.00
2.	Sowing time (oct-dec)	150	100.00
3.	Seed rate (60kg/ac)	61	40.67
4.	Spacing (20-25*5cm)	51	34.00
5.	Seed treatment (Azospirillum-1.2kg/60kg of seeds)	21	14.00
6.	FYM (2.4t/ac)	80	53.33
7.	Irrigation		
	a) Sandy soil(8-10days)/Black soil (15days)	132	88.00
	b) Critical stages	118	78.66
8.	Fertilizer requirement		
	a) N (24kg/ac)	38	25.33
	b) P (12kg/ac)	33	22.00
	c) K (8kg/ac)	14	9.33
9.	Types of fertilizer		
	a) Only urea	3	2.00
	b) Only DAP	2	1.33
	c) Urea + DAP	126	84.00
	d) Complex fertilizers	4	2.66
10.	Micro nutrients		
	a) ZnSO ₄ @ 15/ha	11	7.33
	b) Mixture	11	7.33
11.	Nutrient management		
	a) 50% N as basal + 50% N as top dressing	30	20.00
	b) Entire N as basal	0.00	0.00
12.	Weed management		
	a) Pendimethalin 30EC (1.3ltr in 300ltrs of water/ac)	0	0.00
	b) 2-4 D 80% WP (1kg in 300 ltrs of water/ac) Or Metasulphuron methyl 20 WDG (16g in 200ltrs of water/ac)	34	22.67
13.	Pest management		
	a) Termites (Spray the crop with Chlorpyrifos 20 EC @ 4ml/400ml of water or Aluminium phosphide tablets @ 2 tablets)	0	0.00
	b) Stem borer (Spray the crop with Dimethoate 30EC @ 1.7ml/ltr of water)	0	0.00
	c) Aphids (Spray the crop with Dimethoate 30EC @ 1.7ml/ltr of water)	57	38.00
14.	Disease management		
	a) Rust management (Spray the crop with Propiconazole 25EC @ 1ml/ltr of water)	52	34.67

Relationship between knowledge level and independent variables

A perusal of results of correlation analysis presented in Table 3 revealed that out of nine independent variables studied only farming experience exhibited positive and significant relationship at one per cent level of probability with knowledge level of dicoccum wheat growers. While, the

variables education, mass media exposure, economic motivation, annual income and extension contact exhibited positively significant at five per cent level of probability level with knowledge level of dicoccum wheat growers. The variables which did not show significant relationship were age, land holding, annual income and risk orientation.

Table 3: Relationship of profile characteristics with knowledge of improved dicoccum wheat cultivation practices (n=150)

Profile characteristics	Knowledge
Age	-0.054
Education	0.033*
Land holding	0.123
Farming experience	0.698**
Mass media exposure	0.027*
Extension contact	0.729*
Risk orientation	0.094
Economic motivation	0.044*
Annual income	0.027*

* Significant at 5% level

**Significant at 1% level

Conclusion

It can be concluded from the findings that majority of the dicoccum wheat growers belonged to medium knowledge category. This indicates a vast scope for the line departments to intervene and improve the knowledge level of farmers about improved cultivation practices of dicoccum wheat.

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