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Research Paper Geography

Land-Use Under Jowar Sown area, Production and per Hectare Yield of Dharwad District of Karnataka: A Geographical Analysis

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ABSTRACT

India is rich in Agricultural resources and yet, has remained poor because of stagnation in the subsistence agricultural economy and undue reliance upon it. Agriculture is not only an important economic activity but also a farm of social heritage and a way of life for the millions of Indian farmers. The agricultural sector in India contributes nearly half of the national income, provides jobs to about 3/4th of the population and supplies bulk of the goods and raw materials required by the non-agricultural sectors. There are two seasons in Karnataka i.e. Kharif and Rabi, in which jowar is cultivated in both seasons, where several verities of jowar including HYV seeds and traditional seeds cultivated. The cultivation of jowar is predominantly found in all taluks of Dharwad district where annual rain fall of 75 cm is available, besides the availability of irrigation in some parts, coupled with availability of black and red soils that have favoured the cultivation of jowar.

KEYWORDS: jowar, sown area, production, productivity concentration

Study Area: Dharwad district is located in North Karnataka, extending between 15°-01 N to 150-451 N Latitudes and 740-451 E to 750-301 East Longitudes. It is located in the central part of Belgaum Division and on the semi-arid plateaus of North-West Karnataka. The district covers an area of 4249 sq km, which accounts 2.22 per cent of the total area of the state, and altitude of the district is about 800 meters from Mean Sea Level. Administratively it comprises of 5 taluks viz. Dharwad, Hubli, Kalghatgi, Kundgol and Navalgund, 6 urban agglomerations, 127 village panchayatas, and 372 inhabited villages (Fig 1). The total population of the district is 1604253, out of which 823204 male and 781049 is the female population, while 45.02% of rural and 54.97% urban population. The literacy rate in Dharwad district is 71.87%, while sex ratio is 949 females per 1000 males. It is bounded by Belgaum district on the North, North Canara district on the West, Haveri district in the South and Gadag district on the East. The physical divisions of the study region are varied and exert a great influence on the climate, the soil and the distribution of flora and fauna of the region. The study area is broadly divided into two major physiographical divisions viz. (1) The semi-malnad and (2) maiden region. The study area is distributed in three important river basins namely the Bennihalla basin which covers Navalgund and Hubli taluks, and Bedti and Tatti hall covers Dharwad and Kalghatgi taluks. These three tributaries drain about 27 per cent of the total area under study, and play an important role in the irrigation facilities of the area. The chief soil types found in the district can be grouped under mixed red and black soil, deep black soil, red and sandy soil, medium black soil.

DHARWAD DISTRICT LOCATION MAP

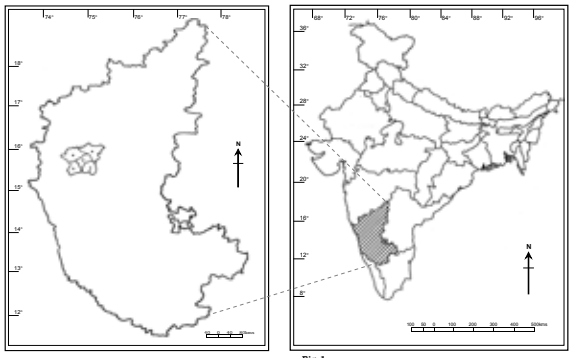


Fig. 1

Objectives:

i) To identify the taluka wise showing the variations in the concentration of area under jowar cultivation
ii) To study the taluka wise variations in the production of jowar.
iii) To know how the correlation ship between jowar sown area and production, fertilizer and production, rain fall and production, irrigation and production and so on

Methodology: The above objectives have been analyzed with the help of categorization of ranges by using mean and standard deviation method while the concentration of area under jowar cultivation is analyzed with the help of Location quotient method, and the Karl Pearson Product Moment Correlation method is used to identify correlation ship between five independent and five dependent variables.

Data Base: The secondary data collected from District Statistical office, Dharwad for the year 2008-09, published by the Directorate of Economics and Statistics, Government of Karnataka.

Discussion: Land use is the surface utilization of all developed and vacant lands on a specific space, at a given time. Lands are used for crops, forest, pasture, mining, transportation, garden, residential recreational, industrial and commercial. Whereas uncultivable wasteland, barren and fallow land, are unused land. Land use is also related to conservation of land from one major use to another general use. The use of land changes according to the changing needs of man.

The Dharwad district has total Geographical area is 427329 hectares. Out of which 8.24% of land under forest. The net sown area accounts for 74.53% the non-agriculture land is 6.02%, the fallow land is 9.69% and cultivable waste land is 0.62% permanent pasture and trees and groves is 0.87%(Table-1& Fig-2). From the above data it reveals that, the district has good percentage of land under agriculture. The forest land is more concentrated in Kalaghatagi taluk (28.39%), Dharwad (12.23%) and Hubli (2.75%) taluks. There is no forest land in Kundagol and Nav-

algund taluks. It is a known fact that, forests play an important role in maintaining the environmental and ecological balance of an area. The only malnad zone consisting of Kalaghatagi and Dharwad (Part of it) taluks has monsoon deciduous forest. In the rest of the part of Dharwad district the forest is bushy, thorny and desert type. It is advisable that in the district more land under forests can be brought by making a wise plan of reallocation of existing land use. In this regards the land which is follow (8.05%) cultivable waste land (0.62%), land not available for cultivation 6.02% can be utilized for forest growth of different botanical varieties, depending upon rainfall distribution and soil type. If this is materialized district will have 8.24 % land under forest, which is a less forest area than approved figure for maintenance of ecological setting of a region. However, while making this plan the taluks that have very less percentage of land under forest should be considered on top priority for afforestation. The general land use in the district exhibits that 76.18% of land is devoted for cultivation and which a good sign for the development of agriculture.

AGRICULTURE LAND USE

The district has 427329 hectares of land is total geographical area. Out of that 318494 hectares (74.53%) of land as net sowed area. Amongst all taluks, the Dharwad taluk having largest geographical area (111788 hectares), second place is Navalgund (108218 hectares) has naturally more land under agriculture in Navalagund taluk. When compared with district percentage of sown area, Kundagol accounts for 92.23% land under sown area. Which is the largest taluk having more land under sown area.

Out of the various land use of Kundagol taluk 92% of land is under net sown area. Rest of the taluks ranges between 60% to 79% under net sown area. This statistics reveals that, all the taluks have greater role to play in agriculture efficiency by way of utilizing the cultivable land in a scientific way. Though we find very good proportion of land under cultivation in various taluks, all such taluks are not equally efficient in levels of agricultural development and yield per hectare. Thus, the existing agricultural land use calls for quality improvement rather than increase in land under cultivation.

Table No.1 GENERAL LAND USE IN DHARWAD DISTRICT-2008-09
(Area in Hectares)

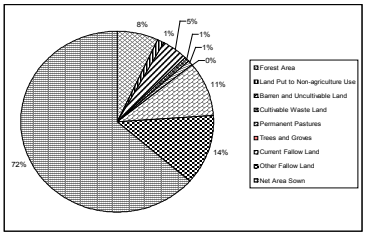
Sl No	Name of Taluks	Geographical Area	Net sown Area	Forest Area	Non-Agril. Area	Culti-Waste Land	Fallow Land
1	Dharwad	111788	74838 (66.94)	1367 (12.23)	9188 (8.21)	3490 (3.12)	10596 (9.47)
2	Hubli	73707	57003 (77.33)	2033 (2.75)	6300 (8.54)	776 (1.05)	7595 (10.30)
3	Kalghatagi	68757	41335 (60.11)	19526 (28.39)	4634 (6.73)	1492 (2.16)	1770 (2.51)
4	Kundgol	64859	59823 (92.23)	- -	2213 (3.41)	591 (0.91)	2232 (3.4)
5	Navalgund	108218	85495 (79.00)	- -	3397 (3.13)	69 (0.06)	19257 (17.79)
	Dist Total	427329	318494 (72.53)	35235 (8.24)	25732 (6.08)	6418 (1.50)	41450 (11.65)

Source: Dharwad District at A Glance, 2008-09

TALUKA WISE NET SOWN AREA – 2008-09

1) Kundagol 59823 92.23 %
2) Navalagund 85495 79.00 %
3) Hubli 57003 77.33 %
4) Dharwad 74838 66.94 %
5) Kalaghatagi 41335 60.11 %
District Total 318494 72.53 %

LAND UTILIZATION 2008- 09



Source: Dharwad District at A Glance, 2008-09 Fig 2

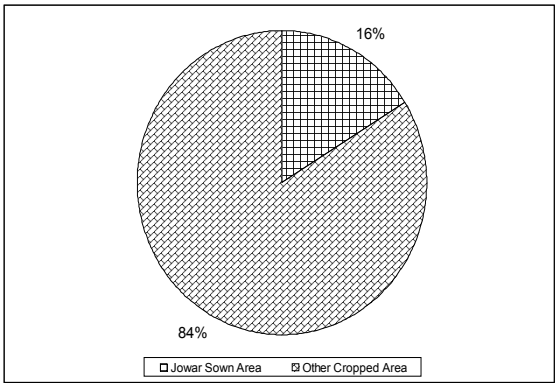
The area under jowar cultivation has been classified into four categories, in order to know how the spatial variation at taluka level is. There are two taluks are high range of area under jowar cultivation where Navalagund taluk(14873 hectares) and Hubli taluk(9358 hectares) appears ranks first and sharing 17.39% and16.41% respectively. Although these taluks are geographically well suited for jowar cultivation. In the medium range of area under jowar cultivation again two taluks are identified viz. Kundagol (9586 hectares) and Dharwad (11640 hectares) sharing at 16.02% and 15.55% respectively. In the low range of area under jowar cultivation only one taluk has appear i.e. Kalghatagi (5682 hectares) shared by 13.79 % (Table-2 & Fig -3&4).

Table 2 DHARWAD DISTRICT JOWAR SOWN AREA 2008-09 (Area in Hectares)

Sl No	Name of Taluks	Jowar Sown Area	% to Net Area sown
1	Dharwad	11640	15.55
2	Hubli	9358	16.41
3	Kalghatagi	5682	13.79
4	Kundgol	9586	16.02
5	Navalgund	14873	17.39
	Dist Total	51139	16.05

Source: Dharwad District at A Glance, 2008-09

DHARWAD DISTRICT PROPORTIONATE NET SOWN AREA AND JOWAR SOWN AREA



Source: Dharwad District at A Glance, 2008-09 Fig 3

DHARWAD DISTRICT JOWAR SOWN AREA 2008-09

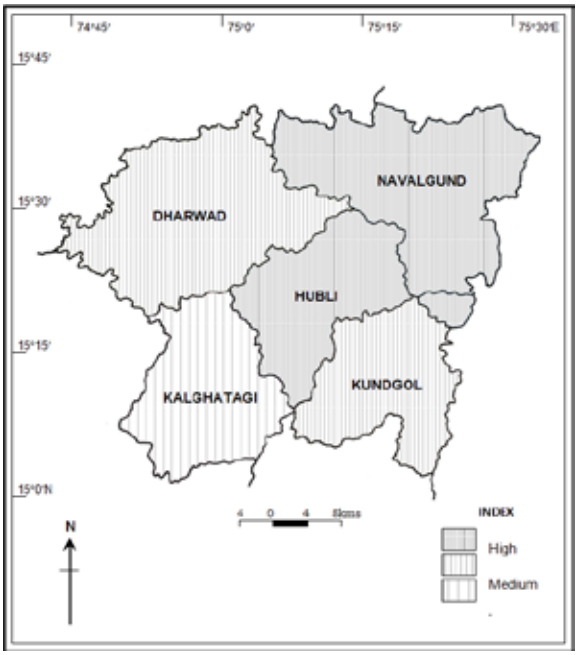


Fig 4

During 2008-09 the total production of jowar from five taluks of Dharwad district was 41270 tones. The classification of range of jowar pro-

duction into three categories shows Navalagund taluk as high with 11895 tones which also leading in area sown under jowar cultivation. Three taluks viz. Kundagol, Kalghatagi and Dharwad have appeared in medium range with 8254 tons to 8054 tones. In low range of jowar production only one taluk have observed i.e. Kalghatagi (4813 tones) (Table-3).

The productivity of jowar is related with suitable physical conditions for cultivation, apart from extant of irrigation, fertility of soil, management of soil with suitable fertilizer and socio economic conditions of the farmers. As a result of these factors, the productivity of jowar (per hectare yield) is not appearing as more as the district average yield (807kg/hectare) (Table-3).

Table 3 TALUKA-WISE JOWAR SOWN AREA, PRODUCTION AND PRODUCTIVITY (PER HECTARE YIELD) IN DHARWAD DISTRICT 2008-09
(Area in Hectares, Production in Tones and Yield in Kg's)

Sl No	Name of the Taluks	Area	Production	Yield
1	Dharwad	11640	8054	618
2	Hubli	9358	8254	882
3	Kalghatagi	5682	4813	847
4	Kundagol	9586	8254	861
5	Navalagund	14873	11895	799
	District Total	51139	41270	807

Source: Dharwad District at A Glance, 2008-09

The area under jowar cultivation is analyzed in the light of S.S.Bhatia's Location quotient method, where the concentration index is obtained. Accordingly out of five taluks of jowar cultivation, the Navalgund and Hubli taluks appear as high concentration with 1.08 and 1.02 respectively. This taluks are located in the well geographical conditions like moderate rain fall, mild winter and black soil zone have very well supported (Table-4 & Fig-5).

Table 4 CONCENTRATION INDEX OF JOWAR SOWN AREA IN DHARWAD DISTRICT 2008-09 (Area in Hectares)

Sl No	Name of Taluks	Jowar sown Area	% to District total	Net sown Area	% to District total	% to Net Area sown	C.I Index	Range
1	Dharwad	11640	22.76	74838	23.69	15.55	0.96	M
2	Hubli	9358	18.29	57003	17.89	16.41	1.02	H
3	Kalghatagi	5682	11.11	41335	12.97	13.79	0.85	L
4	Kundgol	9586	18.74	59823	18.78	16.02	0.99	M
5	Navalgund	14873	29.08	85495	26.84	17.39	1.08	H
	Dist Total	51139	99.99	318494	99.99	16.05		

Source: Dharwad District at A Glance, 2008-09

As per the available data, a correlation study is made with the help of Pearson Product Moment Correlation by taking five independent variables and five dependent variables as shown in below:

CONCENTRATION INDEX OF JOWAR SOWN AREA 2008-09

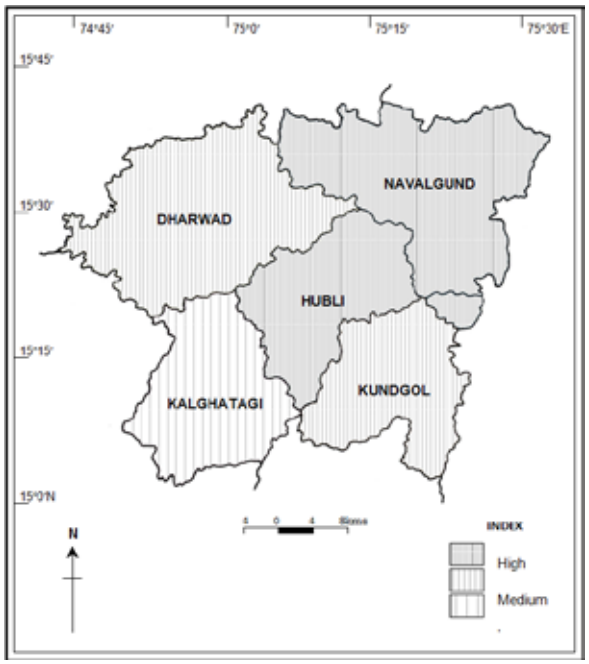


Fig. 5

Table 5 CORRELATION SHIP BETWEEN FIVE INDEPENDENT VARIABLES AND FIVE DEPANDENT VARIABLES

INDEPENDENT VARIABLES	DEPANDENT VARIABLES	RESULT	POSITIVE OR NEGATIVE RELATIONSHIP
Jowar sown Area	Production	0.955	Positive Correlation ship
Rain fall	Production	-0.254	Negative Correlation ship
Irrigation	Production	0.804	Positive Correlation ship
Fertilizer	Production	0.872	Positive Correlation ship
Jowar sown Area	Labourers	0.823	Positive Correlation ship

The above table shows positive significant correlation between all independent variables and dependent variables except rain fall and production (Table-5) this is negative insignificant correlation, however the area of jowar cultivation is not depend upon rain, here the rain fall is uncertain and inadequate, this study needs further investigation.

CONCLUSION:

In identifying the productivity of a taluks, the yield, area sown, labour involved and price of the agricultural products are considered. Navalagund and Hubli taluks appear in high concentration during 2008-09. These two taluks have shown an improvement in productivity due to the influence of Malaprabha river project. Dharwad and Kundagol taluks have appeared in medium concentration region due to extremely dryness and humidity etc. The Kalaghatagi taluk fall under the low concentration region due to lack of irrigation facility, lack of fertile soil and dryness conditions. Overall the agricultural productivity region in Dharwad district is under developed with the influence of Government facilities and progammes to be adopted.

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