Indian Journal of Hill Farming, (2024); 37(2):29-36
doi: 10.56678/iahf-2024.37.02.5
ISSN: 0970-6429

ijhfonline.org

RESEARCH ARTICLE

Implications of Changes in Land Use and Cropping Patterns on Food Security in Himachal Pradesh

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Abstract

The present study analyzes the implications of changes in land use and cropping patterns on food security in Himachal Pradesh. An attempt has also been made to illustrate the major driving force affecting the land use and cropping pattern in the state by using field survey data. The results indicate that the state's net sown area and the total cropped area have decreased from 551.45 to 538.4 hectares and 956.76 to 940.59 hectares from 1990-91 to 2015-16, respectively. Further, the study also found that the area under food crops has declined over time, and crop diversification has taken place at the cost of coarse cereals. Empirical evidence reveals that the distribution of subsidized food items under the public distribution system is one of the primary reasons for changes in land use and cropping patterns. The study concludes that the change in land use and cropping patterns poses a severe threat to food security. Therefore, the study's findings will aid government stakeholders in recognizing the challenges of changing land use and cropping patterns on food and nutritional security in the state.

Keywords: Land use pattern, Cropping pattern, Agriculture, Food security.

JEL: Q10, Q15, Q18, R14, R52

Introduction

India is an agricultural country, and the land is an essential agrarian sector input. Agriculture contributes only 17.5% to the gross domestic product (at current prices in 2015-16), but it is a primary source of livelihood for the majority of India's rural population (Deshpande, 2017). Two-thirds of its population is engaged in agricultural activities. However, due to the rapid population growth and expansion of industrial development, the availability of land for agriculture is declining in India. The average landholding is just 1.1 hectares, which has been declining continuously, causing concerns for millions of smallholder farmers' food and livelihood security (Pandey & Ranganathan, 2018). At the same time, globally, the area under food grains is declining however it is increasing under commercial crops (Food and Agriculture Organisation, 2014). The conversion of agricultural land into horticulture has a devastating impact on food security. India is home to 270 million hungry people, and India stands 107th in the Global Hunger Index 2022 (Ministry of Women and Child Development, 2022).

Similarly, in Himachal Pradesh, the agriculture sector contributes 13.73% of the total state domestic product (Economic Survey of Himachal Pradesh, 2018-19). It is predominantly an agriculture state where agriculture and horticulture provide direct employment to about 62% of the state's total workers. Therefore, the agriculture sector plays a vital role in proving livelihood security. The state has also undergone a tremendous land-use transformation due to population pressure, industrialization and urbanization. Moreover, in many areas, farmers are abandoning agriculture practices due to one or the other reasons (Slariya, 2014). Presently farming in Himachal Pradesh is passing through the transition phase. The state has witnessed massive crop diversification towards high-value crops such as fruits and vegetables. The process of crop diversification is increasing due to the rapid economic growth accompanied by the slowdown of demand for cereals and increasing demand for high-value commodities (Sharma, 2011). The production of vegetables during 2009-10 and 2017-18 has gone up from 1206242 metric tons to 1691564 metric tons, almost at the same level as the food grains production in the state

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How to cite this article: Anuradha, Raj, T. 2024. Implications of Changes in Land Use and Cropping Patterns on Food Security in Himachal Pradesh. Indian J. Genet., **37**(2):29-36.

Source of support: Nil

Conflict of interest: None.

Received: 10/10/2023 **Revised:** 04/12/2024 **Accepted:** 28/01/2025

(Government of Himachal Pradesh, 2018). Since pulses are the essential sources of non-cereal protein in the Indian diet (Chakrabarti, Kishore & Roy, 2018), the production of pulses and traditional food grains, a rich source of energy, protein and micronutrients, is declining in the state. However, this transition could affect the household's food and nutritional security. Therefore, the present study analyzed the land use & cropping patterns and identified the primary driving force affecting the state's land use and cropping pattern.

Data Sources and Methodology

The study is based on secondary as well as primary sources of data. The secondary data has been collected from the Agriculture Census of India, Statistical Outline of Himachal Pradesh and Economic Survey of Himachal Pradesh. Change in land use and cropping pattern is studied in terms of increase or decrease in area under different land use and production. In order to observe the significant driving force responsible for changes in land use and cropping patterns, a primary survey has been conducted. The primary data was collected using schedules and personal interviews. Multi-stage proportionate sampling technique has been used to select a sample at different stages. In the first stage, the Kangra district of the state was selected based on the highest proportion of public distribution system ration cardholders to the total ration cardholders in the state. In the second stage, two blocks and four villages from each block in the third stage were selected following a proportionate sampling technique. Finally, in the last stage, from each selected village, 25 households were selected at random. Thus, the study is based on a representative sample of 200 households.

Review of Literature

Sanjay, Kaustauv & Deepak (2012) studied the cropping and land use pattern in the district Solan of Himachal Pradesh. The results show that the net sown area and the total cropped area have declined, and the area under non-food crops has increased in the district. The trend of cropping pattern shows the crop diversification towards vegetables and fruits. Uma, Madhu & Pushpa Nanaiah (2013) studied the cropping pattern and its impact on food security and found that rural youth are shifting to urban areas and neglecting agricultural activities. They are also changing cropping patterns from food crops to commercial crops, threatening the production of food crops and food security in the future. Krishan (2014) estimated crop diversification and identified the factors that determine crop diversification in Himachal Pradesh. The study found that crop diversification has taken place towards horticulture crops at the cost of coarse cereals. Cropping intensity, availability of fertilizer and irrigation facilities are the significant determinants of crop diversification. Rejula and Singh (2015) examined the shifts in land use and cropping patterns in Kerala and revealed that the state's uncultivated land area is increasing. There was a positive growth of banana and rubber crops while area and productivity under rice recorded a negative growth rate which shows an alarming situation of food security. Sajith (2017) explored that the primary cereals have shifted from millet to rice, and nutrition is compromised due to commercial farming. Vaidya, Bhardwaj & Sood (2017) found that during the last 27 years in the Solan district of Himachal Pradesh, the built-up and agriculture area increased by 131.49 and 38.74%. At the same time, the orchard and forest area decreased by 12.75 and 3.79%. The areas under traditional agriculture decreased by 81%, whereas the cultivation of vegetables per household increased by 291.43%. Over 58% of the respondents perceived that the increased economic returns from cash crops are the major drivers for land use changes, followed by climate change and declining soil fertility. Sinha, Ahmad and Singh (2017) revealed that the net sown area in Bihar has declined by 2.6%, and the area under non-agriculture uses has increased by 2.66%. Therefore, the study suggested that to fulfill the food demand of the growing population government should motivate the farmers to increase productivity and make such strategies that enhance the income of the cultivators. Pandey and Ranganathan (2018) found a significant shift in land use patterns towards non-agriculture activities in Himachal Pradesh, Haryana, Karnataka, Kerala, Orissa and West Bengal due to increasing industrialization and urbanization. Devi and Prasher (2018) found that the trends in area growth under high-value crops have increased in Himachal Pradesh. However, this transformation was uneven across the states. Regulated market infrastructure, irrigated area and per capita income were the major factors that promoted agriculture diversification. Vaidya, Bhardwaj and Sood (2018) found that the built-up area and forest area in the Kullu valley of Himachal Pradesh have increased from 566 hectares and 2828 hectares in 1989 to 1080 hectares and 3005 hectares. However, the area under agriculture decreased to 56.88% from 2767 hectares in 1989 to 1193 hectares in 2016. Further, findings revealed that farmers are abandoning the cultivation of traditional crops such as wheat, barley, and maize and are pursuing the cultivation of fruits and vegetables. Increased economic return from cash crops was the primary driving force for land use change. Kumar and Lal (2023) revealed dynamic changes in land use patterns in Himachal Pradesh, such as a significant growth in current fallows and miscellaneous tree crops and a significant decline in net area sown and forests. The study concluded that the influence of urbanization and non-agriculture development was the reason for the reduction in net area sown. Shibani, Gangan and Samriti (2023) analyzed the determinants of crop diversification in Himachal Pradesh and found that farm size, family size, market information, farming experience and extension services positively affected crop diversification. The availability of HYVs and

chemical fertilizers, irrigation facilities and government subsidies were the major factors influencing the change in the cropping system.

Based on the above literature, it is concluded that the net sown area and the total cropped area have declined over time. The area under high-value crops has increased, and there is considerable crop diversification towards commercial crops.

Results and Discussion

The study comprises two sections. The first section deals with the land use and cropping pattern, whereas the second deals with the primary driving force affecting the state's land use and cropping pattern.

Section-1

Distribution of Landholdings

The distribution of landholdings is an essential indicator of the state of the agricultural economy. It provides the basis for judging whether a holding is viable enough to provide adequate sustenance to its holder. Table 1 depicts the distribution of land holdings in Himachal Pradesh.

The complete analysis of the distribution of landholdings in Himachal Pradesh shows disparities between the number of operational holdings and the area operated. There has been a significant increase in the percentage share of marginal, small and semi-medium categories of holdings between 1970-71 to 2015-16. At the same time, the medium and large category farmers have declined. Marginal, small and semi-medium holdings increased from 14.6, 19.0 & 25.7% in 1970-71 to 30.22, 25.66 and 23.66% of the total holdings in 2015-16. However, the medium and large category farmers have declined from 23.7 and 17.1% in 1970-71 to 15.49 and 4.97% in 2015-16. The findings conclude that the marginal and smallholdings act as a constraint in raising productivity and income. Hence, marginal and small landholding farmers are abandoning agricultural practices, which can distort the food security in the state.

Average Size of Holding in Himachal Pradesh

The landholdings' average size reflects the cultivator's status and their farming potential. With smaller land holdings, the cost of inputs and farmers' capacity to invest in land decreases. Therefore, agriculture becomes non-viable as a profession, which becomes a significant challenge to meet the growing demand for food in the country.

Table 2 reveals that the average holding size of marginal and small farmers remained constant at 0.4 and 1.4 hectares, respectively. In contrast, the average size of other classes decreased from 4.7 hectares in 1970-71 to 3.8 hectares in 2018-19. The overall average landholding size of a household in the state shrunk marginally to 1.0 hectares in 2018-19 from 1.5 hectares in 1970-71. There is a negative percentage change (-33.33%) in 2018-19 over 1970-71.

Changes in Land Use Pattern

The changing land-use patterns have implications for the food security of the state. Land-use change also impacts access to food and nutritional security. Changes in land use patterns in Himachal Pradesh during the last 25 years have been presented in Table 3.

Like other parts of India, Himachal Pradesh is also experiencing land use change. The total geographical area reported by village papers (the area for which the revenue papers exist) was 4531.82 hectares during 1990-91. However, the total geographical area has increased to 4559.01 hectares during 2015-16. The rest of the area is under snow and inaccessible. The area under forest had also increased from 1094.20 hectares (24.14%) in 1990-91 to 1105.99 hectares (24.25%) in 2015-16. However, there was a decrease in barren and uncultivable land from 856.91 hectares (18.90%) to 783.40 hectares (17.18%) in the same year.

A similar trend was observed in the case of the net sown area and total cropped area. The net sown area as a percentage of the reported area declined from 12.16 to 11.80% in 1990-91 and 2015-16. It is also observed that the percentage of land under total cropped area declined from 21.11 to 20.63%, respectively, in the same period. Further,

Table 1: Distribution of Landholdings in Himachal Pradesh

(Percentage share in total holdings)

Category	*1970-71*		*1980-81*		*1990-91*		*2000-01*		*2015-16*	
	Number	*Area*	*Number*	*Area*	*Number*	*Area*	*Number*	*Area*	*Number*	*Area*
Marginal	58.2	14.6	55.1	14.8	60.2	21.2	67.2	25.6	71.4	30.2
Small	20.3	19.0	21.9	20.4	18.7	23.2	19.0	24.9	17.4	25.6
Semi-medium	14.2	25.7	15.0	27.0	10.5	25.4	9.7	24.8	8.2	23.6
Medium	6.3	23.7	6.4	24.7	3.9	20.3	3.2	17.8	2.6	15.4
Large	1.1	17.1	0.9	12.6	0.5	9.6	0.3	6.4	0.3	4.9
All	100	100	100	100	100	100	100	100	100	100

Source: Agriculture Census of India and Himachal Pradesh Stat

Table 2: Average size of holding in Himachal Pradesh

(In hectares)

Year	Category			
	Marginal	*Small*	*Others*	*H.P*
1970-71	0.4	1.4	4.7	1.5
1976-77	0.4	1.4	4.6	1.5
1980-81	0.4	1.4	4.3	1.5
1985-86	0.4	1.4	4.2	1.3
1990-91	0.4	1.4	4.1	1.2
1995-96	0.4	1.4	4.0	1.2
2010-11	0.4	1.4	3.8	1.0
2015-16	0.4	1.3	3.8	1.0
2018-19	0.4	1.3	3.8	1.0
Percentage change 2018-19 over 1970-71	0	-7.14	-19.15	-33.33

Source: Agricultural Census of India.

the area sown more than once also decreased slightly from 8.94% in 1990-91 to 8.82% in 2015-16. Urbanization and more dependence on subsidized commodities could be the probable reasons for decreasing the state's net sown area and total cropped area.

Cropping Pattern in Himachal Pradesh

Changing the cropping pattern harms food production and food security. The cropping pattern of Himachal Pradesh has shifted from traditional crops to commercial crops.

Table 4 and Figure 1 reveal that although the food grain crops still dominate the cropping pattern of the state, the proportion of cultivated area under highly remunerative crops like fruits and vegetables is increasing at a high rate. The area under vegetables registered the highest increase i.e. 3.42% in 2010-11 to 4.76% in 2018-2019 followed by fruits and ginger. However, the area under wheat, maize, rice, barley, ragi, pulses, millets and oilseeds are decreased during the reference.

period. Oilseeds suffered a maximum negative decline over 2011 (-28.1%) followed by ragi (-25.9%) followed by ragi (-25.9%), chilies (-20.6%) and pulses (-17.3%). The cultivated area under vegetables and fruits has increased from 65075 and 214574 hectares in 2010-11 to 86144 and 232139 hectares in 2018-19. The area under vegetables registered the highest increase (32.4% change) from 2010-11 to 2018-19 in the state. However, the analysis clearly shows that the area under food grain production is gradually declining in the state due to an increasing shift towards commercial crops. Wheat is the most crucial rabi crop and ranks first in the state. The area under wheat crop declined from 357244 hectares in 2010-11 to 319002 hectares in 2018-19.

Production of Food Crops in Himachal Pradesh

Food security depends on producing cereal crops; however, the state's farmers have started shifting to the cultivation of cash crops, which are more profitable than cereal crops. A cropping pattern change has also occurred in other parts of India. Table 5 presents a crop-wise changing pattern in Himachal Pradesh from 2010-11 to 2020-21, and it sometimes shows an upward trend and sometimes a downward trend. The production of cereal crops, i.e. rice, maize, wheat and total pulses, has increased, whereas the output of ragi, millets and gram has decreased in the state.

The production of rice, maize, wheat and pulses has risen from 128.9, 670.9, 614.8 and 40.9 thousand tonnes in 2010-11 to 145.6, 714.5, 569.8 and 66.9 thousand tonnes in 2020-21. The overall production of food grains increased from 1493.8 thousand tonnes in 2010-11 to 1528.4 thousand tonnes in 2020-21. Further, the production of commercial crops increased significantly in the state. The production of vegetables increased from 1268.9 thousand tonnes in 2010-11 to 867.4 thousand tonnes in 2020-21.

Table 3: Changes in land use pattern in Himachal Pradesh (Area in '000' hectare)

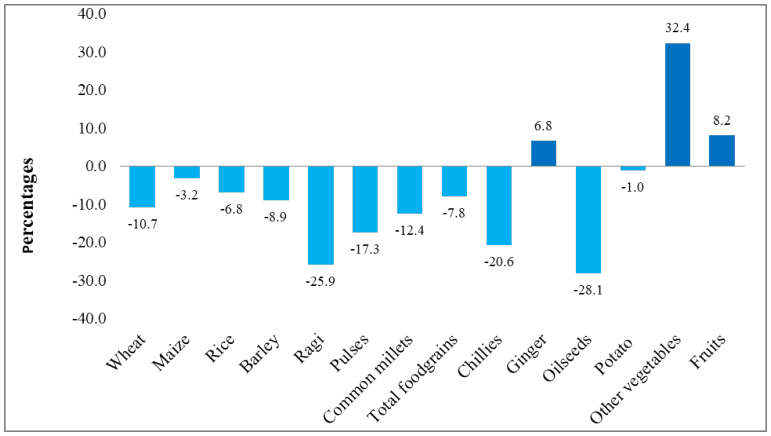
S. No	*Land use*	*1990–91*	*1995–96*	*2000–01*	*2005–06*	*2010–11*	*2015–16*
1	Forest	1094.20 (24.14)	1056.10 (23.26)	1093.50 (24.04)	1100.80 (24.21)	1125.74 (24.60)	1105.99 (24.25)
2	Barren and uncultivable land	856.91 (18.90)	138.90 (3.05)	807.20 (17.75)	647.90 (14.25)	778.52 (17.01)	783.40 (17.18)
3	Net sown area	551.45 (12.16)	557.70 (12.28)	554.60 (12.10)	539.90 (11.87)	543.36 (11.87)	538.40 (11.80)
4	Area sown more than once	405.30 (8.94)	392.10 (8.63)	392.90 (8.64)	404.20 (8.89)	395.26 (8.64)	402.18 (8.82)
5	Total cropped area	956.76 (21.11)	949.80 (20.92)	947.50 (20.83)	944.10 (20.77)	938.62 (20.51)	940.59 (20.63)
6	Total geographical area by village papers	4531.82 (100.00)	4540.10 (100.00)	4547.30 (100.00)	4545.30 (100.00)	4575.63 (100.00)	4559.01 (100.00)

Source: Himachal Pradesh State and Economic Survey of Himachal Pradesh
Note: Figure in parentheses shows the percentage of the total geographical area

Table 4: Area under different crops in Himachal Pradesh During 2018-19 over 2010-11

Crops	*Year*				
	2010-11		*2018-19*		
Food crops	*Area in hectare*	*% of total cropped area*	*Area in hectare*	*% of total cropped area*	*Percentage increase or decrease over 2010*
Wheat	357244	18.79	319002	17.61	-10.70
Maize	296370	15.59	286780	15.83	-3.24
Rice	77064	4.05	71810	3.96	-6.82
Barley	22339	1.17	20356	1.12	-8.88
Ragi	2321	0.12	1720	0.09	-25.89
Pulses	33696	1.77	27856	1.54	-17.33
Common millets	5723	0.30	5012	0.28	-12.42
Total foodgrains	794757	41.80	732536	40.44	-7.83
Chillies	728	0.04	578	0.03	-20.60
Ginger	2082	0.11	2223	0.12	6.77
Oilseeds	14283	0.75	10267	0.57	-28.12
Potato	15259	0.80	15100	0.83	-1.04
Other vegetables	65075	3.42	86144	4.76	32.38
Fruits	214574	11.28	232139	12.81	8.19
Total crops	1901515	100	1811523	100	

Source: Statistical Abstract of Himachal Pradesh, Government of Himachal Pradesh.



Source: Compiled by authors
Figure 1: Area under different crops in Himachal Pradesh: Percentage increase or decrease over 2010

Section- 2

Evidence from Field Survey

From the policy perspective, it is vital to understand the significant driving forces responsible for changes in land use and cropping patterns in the state. People's perception of changes in land use patterns and cropping patterns has been presented in the following section.

Major Drivers of Changing Land Use Pattern and Cropping Pattern

A plethora of empirical studies reported that factors like; rapid economic growth, climate change, and increasing population are responsible for changing land use and cropping patterns in the state. However, from the field survey, it has been observed that the public distribution system (PDS) is one of the major driving forces changing land use and cropping patterns in the state. Under the public distribution system, beneficiaries receive rice, wheat, sugar, pulses, edible oil and salt through the network of fair price shops (FPSs). Table 6 presents the respondents' perception of the PDS as a significant driver of changing land use and cropping patterns in the state.

The results indicate that 122 out of 200 (61%) respondents responded that changes in land use and cropping patterns were due to the PDS which made people lazy, and they stopped agricultural practices. In contrast, 35 (17.5%)

Table 5: Production of food crops in Himachal Pradesh (In '000 tonnes)

Crops	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Food grains											
Rice	128.9	131.6	125.2	128.4	109.4	129.8	135.4	141.3	146.8	143.6	145.6
Maize	670.9	715.4	657.1	678.2	724.1	737.6	736.4	750.9	771.1	729.7	714.6
Ragi	2.1	2.8	2.5	1.9	2.9	1.9	1.6	1.9	1.8	2.0	2.6
Millets	3.2	3.3	3.5	3.6	4.0	3.0	4.8	3.3	4.1	4.7	5.4
Wheat	614.8	629.0	671.9	680.0	708.2	667.6	605.1	598.3	682.6	627.9	569.8
Barley	32.1	31.4	34.8	32.7	30.7	343.3	28.6	28.1	32.0	30.8	22.6
Gram	0.6	0.6	0.4	0.4	0.5	0.3	0.4	0.3	0.4	0.4	0.4
Pulses	40.9	30.1	45.5	50.5	39.6	59.1	50.1	56.9	53.6	54.8	66.9
Total Foodgrains	1493.8	1544.4	1541.3	1576.1	1619.7	1634.0	1562.7	1581.4	1692.4	1594.2	1528.4
Commercial crops											
Potato	205.9	152.9	182.8	205.2	190.5	183.2	195.8	198.6	186.8	196.7	196.3
Vegetables	1268.9	1356.6	1398.0	1430.0	1450.0	1608.5	1653.5	1691.5	1722.1	1860.6	1867.4
Fruits	1027.8	372.8	555.7	866.3	751.9	928.7	611.8	565.3	495.3	845.4	624.4

Source: Economic Survey of Himachal Pradesh, Government of Himachal Pradesh.

respondents responded that they could not blame the public distribution system for this change. Gender-wise responses of the respondents show that 69 (56.6%) males and 53 (43.4%) females agreed that PDS is a major driver of changing land use and cropping patterns. In addition, it has been observed during discussions with the respondents that people had stopped cultivation because of wild animal menace such as stray animals, monkeys, etc.

Utilization of Subsidized Commodities

The utilization of subsidized commodities shows the beneficiaries' dependence on PDS. The frequency of utilization of PDS commodities from FPSs in the study area is given in Table 7. The analysis reveals that more than 90% of respondents always purchased PDS wheat, sugar, pulses and edible oil, and the remaining 10% of respondents sometimes bought from PDS. In the case of rice and salt, more than 80% of respondents always purchased their full entitlement from FPSs. Only about 2.5% of respondents never purchased salt. The respondents also revealed that most of the food requirements, such as rice, wheat, pulses, sugar, salt and edible oil, are met through the PDS. If they are below the poverty line and have antyodaya anna yojana status, they can get foodstuffs for the whole month by paying approximately 400 rupees. Therefore, their food security is not hampered if they do not work on agricultural land.

Table 6: Respondents perception: Land use and cropping pattern changed due to the PDS

S. No	Gender	Yes	No	Can't say
1	Male	69 (56.6)	24 (55.8)	16 (45.7)
2	Female	53 (43.4)	19 (44.2)	19 (54.3)
3	Total	122 (61.0)	42 (21.5)	35 (17.5)

Source: Computed from field survey
Note: Figures in parentheses denote the percentage of the respective total

Land Use Pattern of the Study Area

The land use pattern indicates land distribution under two categories: cropped area and barren area. The influence of PDS on land use can be seen from the field survey. The land use pattern of sampled households in the study area has been presented in Table 8.

Table 8 reveals that out of 70.66 hectares of land, the total cropped area was only 24.98 hectares (35.35%), while 45.68 hectares (64.64%) of land was barren in the study area. Therefore, it can be concluded that the public distribution system can be one reason for abandoning agricultural practices, as more than 64% of the land was barren in the study area.

Occupational Pattern in the Study Areas

Studying the changing nature of the occupation pattern of the workforce has a significant role in analyzing the impact of the PDS on land use and cropping patterns (Table 9).

The results show that only 62 persons (20.87) were engaged in agriculture activities. One hundred forty-three persons (48.14) were involved in non-agriculture activities, 43 persons (14.47) were working in government services, and 49 persons (16.49) were casual laborers. It shows less

Table 7: Frequency of commodities purchased from fair price shops in the study area

S. No	Commodities	Frequency of commodities purchased			
		Always	Sometimes	Never	Total
1	Rice	176 (88.0)	21 (10.5)	3 (1.5)	200 (100)
2	Wheat	183 (91.5)	17 (8.5)	0 0.0	200 (100)
3	Sugar	198 (99.0)	2 (1.0)	0 0.0	200 (100)
4	Pulses	193 (96.5)	7 (3.5)	0 0.0	200 (100)
5	Salt	163 (81.5)	32 (16.0)	5 (2.5)	200 (100)
6	Edible oil	197 (98.5)	3 (1.5)	0 0.0	200 (100)

Source: Computed from field survey
Note: Figures in parentheses denote the percentage of total

dependence of households on agriculture as they are getting subsidized commodities from the PDS. Thus, the public distribution system, on the one hand, is ensuring food security at the micro-level and on the other hand, it is making people more dependent on it.

Policy Implications

Himachal Pradesh faces a unique challenge in balancing food security with sustainable agricultural practices. While government subsidies under the public distribution system (PDS) ensure household food security, they inadvertently discourage traditional farming and optimal land utilization. Simultaneously, farmers increasingly prioritize cash crops for higher returns, leading to a gradual decline in food grain cultivation. Policymakers must adopt a holistic approach to address these dynamics by promoting balanced and sustainable agricultural practices. Expanding local procurement of coarse cereals for PDS distribution can bolster farmer incomes while enhancing regional food security. Furthermore, integrated farming systems should be promoted to maximize land use efficiency, and targeted financial assistance should be provided by the government to encourage farmers to adopt sustainable and resilient agricultural practices, safeguarding their livelihoods and the environment.

Table 8: Land use pattern in the study area

S. No	Land use pattern	In hectares	In percentage
1	Total cropped area	24.98	35.35
2	Barren area	45.68	64.64
3	Total land owned	70.66	100.0

Source: Computed from field survey

Table 9: Occupational pattern of the households

S. No	Occupation	Number of households	Percentage of households
1	Agriculture	62	20.87
2	Non-agriculture	143	48.14
3	Government employee	43	14.47
4	Casual labour	49	16.49
	Total	297	100.0

Source: Computed from field survey

Conclusion

It may be concluded that the net sown area and the total cropped area of the State have declined, and there has been a decrease in the area and production of traditional crops. The state's farmers have started shifting to the cultivation of cash crops, which are more profitable than traditional crops. There is also an increasing marginalization of holdings in the state. Empirical evidence on the significant driver for changing land use and cropping patterns reveals that the distribution of subsidized food items under the PDS significantly changed land use and cropping practices. About 61% of the respondents responded that changes in land use patterns were due to the public distribution system, which made people lazy and the farmers abandon agricultural practices. The study concluded that a subsidized food distribution system to all households, irrespective of economic status, is the most crucial factor affecting land use and cropping patterns. Therefore the government should focus on cultivating food crops and provide subsidized commodities only to households under the National Food Security Act. The changing land use and cropping patterns are of great concern to serve the demand for food and nutritional security.

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