

CHAPTER-4

**REGIONAL DISPARITIES
IN AGRICULTURAL
DETERMINANTS IN
HARYANA**

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4.1 Introduction

Agricultural determinants are the most important for agricultural growth. This chapter is an attempt to analyse the regional disparities (district-wise and zone-wise) in context of agricultural determinants in Haryana. Agriculture determinants are refers as such variables which influence the agriculture production. There are various determinants of agriculture production in this study irrigation, HYV seeds, use of chemical fertilizers, pesticides, rainfall and agricultural credit. This chapter divided in to 2 sections. The first section attempts the trend and pattern of agricultural determinants in state. The second section depicts the behaviour determinants zone-wise and district-wise and shows the regional variations among the districts and zone inform of coefficient of variation.

4.2) Disparities in Agriculture Production and Agricultural Inputs in Haryana Zone-wise

Irrigations

The irrigation is the most important factor for agriculture productivity. The period of rainfall in Haryana is June to September. In some parts of the Haryana it is low. In the lack of irrigation, the farmer cannot risk his investment in other inputs that contribute to increased productivity. It is important, because there are some crops that require a large quantity of water and some crops require water for a long period. For example, rice cannot be growth if the availability of water is less; sugarcane requires water not only in loose quantities but also for a long period. Thus, irrigation becomes necessary of certain crops. Irrigation facility can help in solving the problems created insufficient, uncertain and irregular rains. However, the irrigation is highly unequal in India, it has much importance in agriculture sector and it has to provide where it is possible by the govt. to reduce the widening disparities in agriculture.

2001-02	83.90
2002-03	82.40
2003-04	88.00
2004-05	84.00
2005-06	82.30
2006-07	82.30
2007-08	84.10
2008-09	82.00
2009-10	86.40
2010-11	82.10
2011-12	84.00
2012-13	88.30
2013-14	83.30
2014-15	84.50
Source: Department of Economic and Statistical Analysis, Government of Haryana (2001-2015)	

The table 4.1 shows percentage of net area under irrigated in Haryana. There are not much disparities in Crop area irrigated during the period 2001 to 2015; it is above 80 percentages over the period.

4.2.2) Sources of Irrigations

Irrigation is one of the important agricultural inputs. The table 4.2.1 shows the area under different sources of irrigation like canals, Tube wells and others etc in Haryana zone-wise. Others sources includes tanks, wells etc.

An irrigated area in Haryana by canal irrigation of northern zone was continuously declined but it was highest in 2009-10 with 11.54 percent; whereas in central zone it was increased. Trend of canal irrigation in western and southern zone was declined during the period. Highest irrigation by canal in western zone and lowest in southern zone. Except western zone

there is declined irrigation by tube well in other three zones over the period. Highest trend share in northern and lowest in western zone. Trend of other sources irrigation decreasing in western and southern zone. Out of total area irrigation by tube-wells irrigated maximum comparison in canal and other sources irrigation.

CAGR in canal irrigated was negative in western zone with -0.98. It was highest positive in northern zone, but percentage share is increased. Growth rate of tube- wells negative with -3.14 percent in western zone whereas highest positive in central zone of Haryana. CAGR in other source highest positive in western with 3.49 and negative in northern and central zone with -6.08 and -6.00 percent respectively.

C.V. shows the variations in sources of irrigation zone wise. In canal irrigations highest variation in northern zone and lowest in southern zone with 15.11 and 2.17 percent coefficient of variations. There are not much disparities in central and western zone.

In case of tube-well highest variations in western zone with 21.81 percent coefficient of variations whereas lowest in northern zone with 4.21. There are not much disparities in central and southern zone. In other not much disparities in all zones of Haryana.

Table 4.2.1 Percentage share of sources of irrigations in Haryana zone-wise (2001-02 to 2014-15)

Irrigations	Zones	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	CAGR	C.V
Canal	Northern	10.25	08.94	08.30	06.81	07.57	10.59	11.31	10.07	11.54	09.75	08.01	07.01	07.93	06.10	3.77	15.11
	Central	28.64	35.33	33.01	35.03	33.73	34.53	34.91	34.72	34.30	34.95	33.25	34.91	33.25	32.89	-0.98	7.07
	Western	57.79	52.50	55.69	55.23	55.75	52.13	51.03	53.76	52.12	52.81	54.94	51.03	54.94	52.56	0.68	7.55
	Southern	03.32	03.24	03.00	02.94	02.95	02.76	02.75	01.46	02.04	02.50	03.80	02.90	03.80	02.98	0.77	2.17
Tube wells	Northern	35.38	36.62	36.44	37.92	36.78	33.38	31.07	32.52	33.06	31.35	34.48	31.07	32.34	30.30	1.11	4.21
	Central	24.20	20.91	19.10	20.69	19.81	20.55	19.26	19.02	22.25	20.70	23.33	19.26	18.90	18.70	1.86	9.55
	Western	14.66	16.71	18.01	17.10	17.16	22.50	24.42	21.96	15.94	21.54	22.48	24.42	23.83	22.90	-3.14	21.81
	Southern	25.77	25.77	26.44	24.28	26.24	23.57	25.25	26.50	28.75	26.42	19.70	25.25	23.78	23.90	0.54	10.45
Others	Northern	10.34	07.69	04.00	04.35	13.04	14.29	10.00	17.65	25.00	20.00	25.00	24.80	25.90	24.89	-6.08	3.21
	Central	13.79	46.15	44.00	47.83	47.83	52.38	60.00	64.71	25.00	40.00	35.00	32.78	32.89	32.80	-6.00	2.08
	Western	41.38	15.38	28.00	21.74	21.74	14.29	15.00	11.76	37.50	20.00	25.00	25.90	25.67	25.60	3.49	2.18
	Southern	34.48	30.77	24.00	26.09	17.39	19.05	15.00	05.88	12.50	20.00	24.00	23.56	23.89	23.78	2.69	3.56

Source : Department of Economic and Statistical Analysis, Government of Haryana (2001-2015)\

The table 4.2.2 shows total area irrigated in Haryana crop wise percent share. Highest irrigation of crop rice in southern zone. Trend of irrigation under crop rice was increased in northern, central and western zone decreased in southern zone. Total irrigated area of wheat was highest in southern zone. Except southern zone trend share was increased during the period. Central zone have recorded highest percent share of irrigation for crop jowar in southern zone. Trend of irrigation under crop jowar increasing in northern and western zone and decreasing in central and southern zone. Trend irrigation share under bajra increased in all three zones except northern zone.

Trend irrigation share under maize was increased in northern, western and southern zone. There are no much disparities in central zone. Trend share under gram was decreased in all zones. Trend share under irrigation crop sugarcane and total cotton was decreased. Total pulses crop have highest irrigation in northern zone. Trend share under this crop was decreased in all zones of Haryana. CAGR under rice was positive with 5.48 percent in southern zone, whereas negative in other three zone. CAGR under wheat positive in southern zone with 5.78 percent whereas it is negative in all other three zones. CAGR of irrigation under jowar was negative in northern and southern zone, whereas it is positive in central and southern zones. CAGR under crops bajra positive in northern and negative in other three zones. CAGR of total cereal positive in southern zone with 1.79 percent whereas negative in northern, central and western zones. CAGR under crop maize negative in northern, western and southern zone but in central zone zero growth rate was recorded. CAGR of gram positive in all zones. Highest positive in northern with 6.76 percent and lowest in southern with 1.61 percent. Growth rate of sugarcane higher in western and lowest in central zone.

Crops	Zones	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	CAGR	C.V
Rice	Northern	45.44	51.11	48.85	47.41	48.92	47.04	46.88	46.36	41.20	43.98	42.90	42.91	43.15	42.90	0.41	5.96
	Central	37.45	31.78	32.46	33.07	33.07	33.84	33.62	33.58	39.02	34.61	35.24	35.27	35.16	35.24	0.44	13.72
	Western	13.50	12.99	16.50	14.73	14.68	15.49	15.85	16.23	18.69	17.01	17.34	17.39	17.50	17.58	-1.77	18.68
	Southern	03.61	04.12	02.19	04.78	03.33	03.63	03.65	3.82	01.09	0 4.40	04.52	04.43	04.19	04.27	-1.58	31.90
Wheat	Northern	21.51	23.28	22.53	22.60	23.08	23.07	24.27	27.96	22.55	22.23	22.24	22.17	22.21	22.26	-0.24	10.98
	Central	29.69	32.53	30.44	30.15	29.66	30.31	23.48	27.13	29.71	29.60	29.41	29.38	29.35	29.40	0.07	8.57
	Western	32.90	33.92	32.09	32.20	32.80	32.94	35.52	31.79	34.33	34.25	34.53	34.45	34.44	34.38	-0.34	7.00
	Southern	15.90	10.27	14.93	15.05	14.46	13.68	16.73	13.12	13.42	13.93	13.82	14.00	13.99	13.96	1.00	10.52
Jowar	Northern	23.91	32.32	25.96	29.29	22.83	31.63	36.19	37.74	40.20	42.00	42.86	41.84	42.00	42.06	-4.08	22.86
	Central	58.70	51.52	54.81	53.54	56.52	53.06	47.62	47.17	43.14	41.00	39.80	39.80	41.00	39.25	2.81	13.05
	Western	02.17	02.02	3.85	03.03	04.35	03.06	02.86	02.83	04.90	06.00	07.14	07.14	07.00	07.48	-8.15	35.17
	Southern	15.22	14.14	15.38	14.14	16.30	12.24	13.33	12.26	11.76	11.00	10.20	11.22	10.00	11.21	2.90	14.61
Bajra	Northern	02.70	00.75	01.14	01.19	01.16	01.06	01.28	00.79	01.40	0.90	0.99	0.90	01.33	00.90	7.44	31.77
	Central	31.08	33.83	28.57	32.14	31.21	29.63	29.79	30.71	33.18	31.98	37.62	34.39	34.51	34.53	-1.36	19.85
	Western	37.84	39.10	37.14	39.29	35.84	37.04	31.91	33.07	35.98	34.23	38.12	34.39	34.07	33.63	-0.05	12.95
	Southern	28.38	26.32	33.14	27.38	31.79	32.28	37.02	35.43	29.44	32.88	23.27	30.32	30.09	30.94	1.43	24.40
Total cereals	Northern	53.62	53.74	46.42	51.65	51.28	37.94	36.02	34.61	39.96	33.45	43.86	26.93	26.92	36.53	1.45	5.10
	Central	09.52	02.86	03.45	04.35	03.64	03.28	03.45	02.22	04.76	02.74	04.26	32.31	32.25	43.70	5.92	6.33
	Western	109.52	128.57	86.21	117.39	98.18	91.80	80.46	86.67	112.70	97.26	161.70	29.17	29.21	3.95	-2.74	27.11
	Southern	133.33	148.57	112.07	143.48	112.73	114.75	86.21	93.33	122.22	104.11	163.83	11.58	11.62	15.82	-1.46	4.33
Maize	Northern	14.29	14.29	20.00	16.67	14.29	25.00	25.00	20.00	20.00	11.11	20.00	22.22	14.29	25.00	-2.37	36.64
	Central	28.57	28.57	20.00	16.67	14.29	12.50	25.00	20.00	20.00	22.22	20.00	22.22	28.57	25.00	2.58	32.68
	Western	42.86	42.86	40.00	50.00	57.14	50.00	37.50	40.00	20.00	44.44	40.00	33.33	28.57	25.00	0.49	33.22
	Southern	14.29	14.29	20.00	16.67	14.29	12.50	12.50	20.00	40.00	22.22	20.00	22.22	28.57	25.00	-2.37	35.95

Barely	Northern	16.12	18.18	15.62	17.24	10.00	16.12	10.25	11.90	25.53	4.65	7.89	5.26	7.32	6.52	5.24	45.64
	Central	9.67	9.09	6.25	10.34	13.33	12.90	7.69	4.76	2.12	9.30	10.52	10.53	9.76	15.22	-0.60	31.30
	Western	38.71	48.48	53.12	55.17	56.66	54.83	71.79	71.42	61.70	69.76	68.42	71.05	68.29	63.04	-3.99	28.84
	Southern	35.48	24.24	25.00	17.24	20.00	16.12	10.25	11.90	10.63	16.27	13.15	13.16	14.63	15.22	7.34	7.14
Gram	Northern	10.87	13.33	14.71	16.13	13.64	17.24	14.29	11.11	30.00	11.11	15.00	13.04	4.00	17.86	-2.27	56.08
	Central	6.52	6.67	5.88	3.23	4.55	6.90	7.14	2.22	2.50	11.11	15.00	13.04	8.00	10.71	-5.78	40.01
	Western	71.74	66.67	64.71	64.52	68.18	58.62	64.29	75.56	37.50	66.67	55.00	60.87	76.00	64.29	1.92	37.42
	Southern	10.87	13.33	14.71	16.13	13.64	17.24	14.29	11.11	30.00	11.11	15.00	13.04	12.00	7.14	-2.27	55.64
Sugarcane	Northern	62.86	60.13	54.01	57.23	60.61	65.63	65.00	66.91	71.11	53.85	72.62	55.45	54.87	55.65	-1.03	19.52
	Central	25.71	27.22	31.02	30.82	31.06	25.78	26.43	24.46	20.00	33.33	21.43	38.18	39.82	40.00	1.31	17.08
	western	6.43	8.23	10.70	7.55	3.79	3.91	4.29	4.32	3.33	5.13	2.38	1.82	2.65	1.74	7.35	43.15
	Southern	5.00	4.43	4.28	4.40	4.55	4.69	4.29	4.32	5.56	7.69	3.57	4.55	2.65	2.61	2.43	32.42
Total cotton	Northern	1.60	1.09	3.77	2.24	0.80	0.85	1.13	1.23	0.67	0.39	0.40	0.59	0.40	0.40	10.32	83.15
	Central	9.77	5.18	10.55	11.40	11.74	12.29	11.47	11.70	10.47	10.64	11.92	10.74	11.09	11.51	-1.41	11.43
	Western	88.10	46.87	84.56	84.49	83.92	84.13	86.09	86.65	88.64	88.59	87.27	88.48	88.12	87.70	0.07	9.12
	Southern	0.53	46.87	1.13	1.87	3.54	2.73	1.32	0.41	0.22	0.39	0.40	0.20	0.40	0.40	2.00	47.12
Total pulses	Northern	8.06	9.38	8.11	6.45	7.41	6.45	6.90	5.06	8.00	10.00	8.33	8.00	8.33	7.14	-0.23	17.10
	Central	17.74	18.75	31.08	32.26	37.04	35.48	36.21	26.58	42.00	32.50	27.08	42.00	43.75	37.50	-2.98	22.82
	Western	56.45	56.25	44.59	45.16	38.89	38.71	43.10	50.63	34.00	42.50	45.83	34.00	35.42	39.29	1.50	31.20
	Southern	17.74	15.63	16.22	16.13	16.67	19.35	13.79	17.72	16.00	15.00	18.75	16.00	12.50	16.07	-0.39	24.15
Total food- grains	Northern	25.95	25.55	29.90	29.30	29.74	29.53	28.38	27.61	28.05	27.97	27.90	28.05	27.97	27.90	-0.51	2.83
	Central	28.45	31.00	29.16	31.63	31.33	31.62	31.43	30.87	31.51	31.29	31.71	31.51	31.29	31.71	-0.77	7.40
	Western	29.54	28.82	27.97	26.70	26.72	27.03	27.43	28.78	28.71	28.62	28.85	28.71	28.62	28.85	0.17	9.13
	Southern	16.06	14.63	12.97	12.37	12.20	11.81	12.76	12.74	11.73	12.12	11.55	11.73	12.12	11.55	2.38	14.75

Source : Department of Economic and Statistical Analysis, Government of Haryana (2001-2015)

CAGR of total cotton was positive highest in northern and lowest in central zone. Highest positive CAGR in western zone under total pulses. It was followed by southern, northern and central with 5.79, 3.72 and 0.68 percent respectively. CAGR under total food grain was positive in southern zone with 5.63 and negative in northern zone. C.V shows variations in food grains crops. In rice crop highest variation in southern zone with 31.90 percent and lowest in northern zone with 5.96 percent. There are not much disparities in wheat in northern & southern zone. In jowar crop highest variations in western zone with 35.17 percent coefficient of variation. In bajra crop highest variations in northern and lowest in western with 31.77 and 12.95 percent respectively. Highest variations in crop total cereals in western zone with 27.11 percent coefficient of variation. In case of maize crop coefficient of variation is 36.64, 32.64, 32.68 and 35.95 in northern, central, western and southern zone respectively. In crop barely highest variation in northern and lowest in southern zone over the period. Western zone having highest variation in western zone and lowest in central zone in case of crop sugarcane. In case of crop total food grains highest variation in southern zone.

4.2.3) High Yielding Variety Seeds

High yielding variety seeds are important as input in the agriculture sector. The high yielding variety seeds used particularly for food grains. The High Yielding Varieties Programme (HYVP) was Government sponsored programmes directed at the general problems of food grains shortage and rural poverty in India. The programme motive at raising farm productivity and rural earnings. The former resulted in the intensive agricultural district programme which attempted to increase farm productivity in well endowed districts by applying a package of inputs consisting mainly of high quality seeds and chemical fertilizers. Nevertheless, the programme was not so impressive as to solve the food grain shortage in India. The problem was deeply felt during the acute shortage of food grains which India experienced in 1965-66 and 1966-67. Reading the exigency of the time, the Union

Department of Agriculture, in August 1965, made its pronouncement of a 'New Strategy' of agricultural development. HYV improved quantity and quality of crops, which is the best measure of increasing agriculture production. The highly HYV concentrates only important agricultural crops that have to extent to the number of crops cultivated in the agriculture in Haryana.

The table 4.2.3 shows crop wise percentage share of each region of area under HYV seeds. Area under HYV in rice increased in northern, central and southern zones. Trend share of wheat increased in three zones except southern zone of Haryana. Area under HYV under bajra increased in central and southern zones whereas decreased in northern and western zones. CAGR of area under HYV seeds for the crop rice was negative in all zones of Haryana. It is highest negative in southern and lowest in western zone. Growth rate of area under HYV for crop wheat positive in three zones except southern. CAGR of bajra negative in all zones of Haryana. CAGR under maize positive highest in central with 2.82, it was followed by northern, southern and western zones respectively. Percentage share of HYV was lowest in crop maize; it was followed by wheat, rice and bajra. It is highest negative in western and lowest in southern zone. Coefficient of variation is highest in HYV use in crop rice in southern and lowest in northern zone over the period. HYV use in crop wheat highest variation in southern zone and in crop bajra highest variations in northern zone.

Table 4.2.3 Crop –wise percentage share zone –wise of area under HYV seeds (2001-02 to 2014-15)

Crops	Zones	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	CAGR	C.V
Rice	Northern	41.11	48.43	49.00	47.10	47.91	46.24	46.37	48.10	48.87	48.08	47.37	44.63	51.09	52.55	-1.91	17.03
	Central	37.92	35.38	32.00	33.91	34.82	34.78	34.90	36.23	35.64	36.33	39.26	37.80	23.37	20.92	-7.63	27.46
	Western	15.99	12.59	16.83	15.94	14.04	15.29	15.16	12.85	12.63	13.07	12.17	16.46	23.54	23.98	-0.79	12.40
	Southern	4.98	3.60	2.17	3.04	3.24	3.69	3.57	2.82	2.86	2.52	1.19	1.12	2.00	2.55	-8.11	39.81
Wheat	Northern	22.12	25.98	23.28	23.58	23.26	24.23	23.67	23.77	23.75	23.55	22.97	24.19	20.24	23.62	0.39	6.30
	Central	29.46	29.58	30.50	30.18	29.55	31.32	31.60	31.69	30.68	30.41	30.39	31.64	35.39	31.46	0.39	4.10
	Western	31.86	29.97	31.81	31.47	32.71	34.00	34.18	34.03	35.33	35.20	35.06	36.99	37.24	37.82	1.15	7.34
	Southern	16.56	14.47	14.42	14.78	14.48	10.45	10.55	10.52	10.24	10.84	11.59	7.18	7.12	7.10	-5.94	17.29
Bajra	Northern	0.74	0.49	0.27	0.20	0.23	0.23	0.61	0.59	0.76	0.70	0.78	0.78	0.56	0.55	-4.83	33.96
	Central	16.76	15.28	19.13	17.65	17.86	18.16	19.67	19.63	20.08	19.86	18.99	19.09	20.15	18.20	-2.27	14.86
	Western	44.15	44.77	52.80	44.35	43.65	47.20	45.16	44.88	43.75	43.69	40.99	41.15	28.72	27.29	-6.13	22.52
	Southern	38.36	39.47	27.79	37.80	38.25	34.41	34.56	34.91	35.42	35.75	39.23	38.98	50.58	53.96	-0.45	10.68

Source: Department of Economic and Statistical Analysis, Government of Haryana, (2001-2015)

4.2.4) Rainfall

In India, rainfall variability is a central driver of the national economy. Although a considerable volume of Himalayan water flows into India, in situ rainfall is the main resource for agriculture which generates about 20 % of the national GDP (CIA 2012). More than half of the country's population depends on agriculture for their livelihoods. Indian climate is dominated by the southwest monsoon accumulating 70 percent to 90 percent of annual precipitation between June and September. The food grain production of India has a proportional relationship to the monsoon, with its critical dependence on the onset, duration and distribution of rainfall.

Years	Northern	Central	Western	Southern
2001-02	453.30	203.50	138.10	182.90
2002-03	391.90	182.20	156.20	118.50
2003-04	486.90	244.70	155.10	272.80
2004-05	449.20	233.10	110.00	166.40
2005-06	410.70	296.80	140.80	184.80
2006-07	292.00	153.80	102.60	148.30
2007-08	359.70	227.40	110.00	277.50
2008-09	477.40	379.60	155.90	338.60
2009-10	376.50	229.00	171.90	253.50
2010-11	583.10	300.30	154.70	399.90
2011-12	468.10	228.90	137.60	317.80
2012-13	359.70	227.40	157.00	260.00
2013-14	476.10	200.80	188.00	241.80
2014-15	468.10	228.90	137.60	317.80
C.V	16.77	23.48	16.72	25.29

Source: Department of Economic and Statistical Analysis, Government of Haryana, 2001-2015

The table 4.2.4 shows rainfall in Haryana zone wise during 2001-02 to 2014-15. Rainfall was increased in northern zone with 453.0 to 468.1 centimetres during 2001-02 to 2014-15. In central and southern zones, also increased during the period, whereas it was decreased in western zone. Highest variations in rainfall in southern zone with 25.29 percent.

4.2.5) Consumption of chemical fertilizer

The use of chemical fertilizer is most important for the growth of agricultural output. The role of chemical fertilizers for increased agricultural production. India is the second largest consumer of fertilizers in the world after China. It accounted for 15.3 percent of the world's nitrogenous consumption, 19 percent of phosphatic and 14.4 percent of potassic nutrients in 2008 (FAI, 2010). However, after introduction of green revolution in 1966-67, per hectare fertilizer consumption more than doubled in the next five years from about 7 kg in 1966-67 and 16 kg in 1971-72, which further increased and reached a level of 50kg in mid-1980s. Average fertilizer consumption on per hectare basis crossed 100 kg in 2005-06 and reached a record level of 135 kg in 2009-10. However, per hectare fertilizer consumption fell during 1973-74 and 1974-75 due to oil shock of 1973 when oil prices quadrupled almost overnight. The next reversal in intensity of fertilizer use came in 1992-93 when government decontrolled phosphatic and potassic fertilizers and increased fertilizer prices significantly. According to the national commission on agriculture "increasing production of agriculture is related to increased consumption of fertilizers". There are three types of chemical fertilizer are use of in agriculture.

1. Nitrogenous fertilizer which comprises saltpetre, nitre, and urea etc.
2. Phosphatic fertilizer comprises of bonus and rock phosphates. It helps in the root development of crops.
3. Potassic fertilizers comprises of potassium chloride and potassium sulphate. It helps the transference of food materials from one part of plant to another. The proper use of chemical

fertilizers can considerably increase the productivity of soil. Indian soil is deficient in nitrogen and phosphorous and this deficiency can be made good by an increase use of fertilizers. Since, possibilities of extensive cultivation are extremely limited because most of the cultivable area is already being cultivated, there is no option but to extend intensive cultivation in more and more areas by using larger quantities of fertilizers to meet the demand for multiple cropping is possible.

Figure 4.1

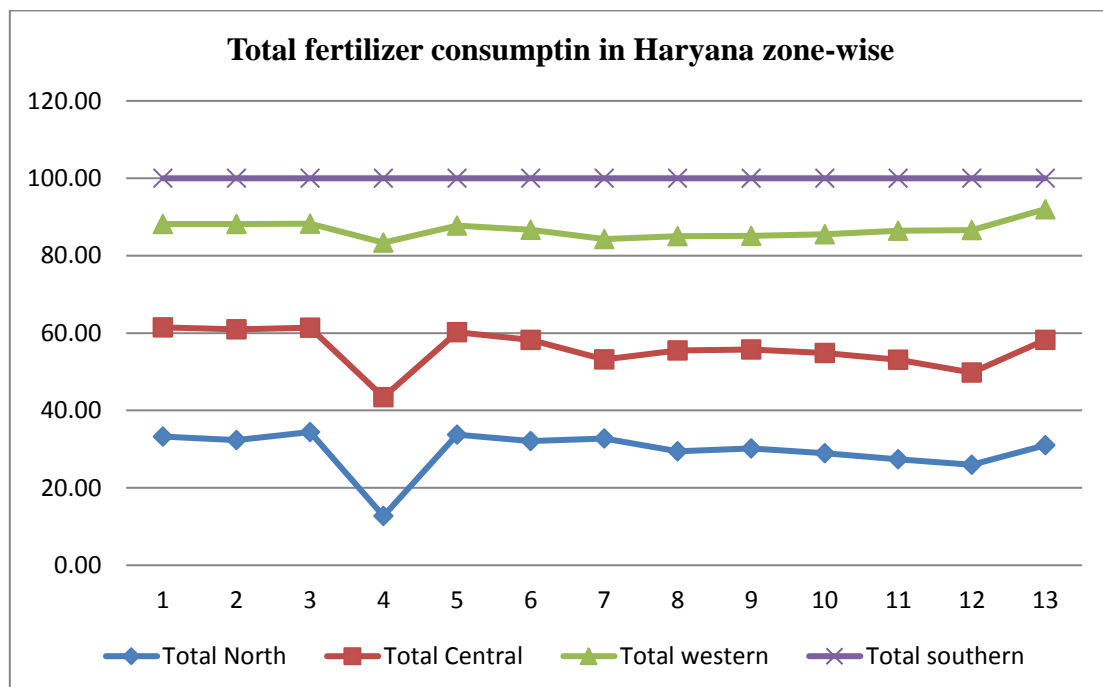


Figure 4.1 Shows total fertiliser consumption in Haryana zone wise. It was lowest during 2004-05 in all zones.

Table 4.2.5 Percentages share of fertilizer consumption in Haryana zone-wise (2001-02 to 2014-15)

Fertilizer	Zones	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2012-13	2013-14	2014-15	CAGR	C.V
Nitrogenous	Northern	33.74	32.64	34.94	38.54	36.97	29.64	31.00	29.81	31.83	26.45	32.60	28.88	25.73	3.09	9.52
	Central	28.58	28.58	27.07	21.66	29.25	27.89	26.16	26.22	25.82	27.46	25.51	25.07	25.35	1.98	12.52
	Western	26.44	27.23	26.73	28.43	20.85	29.48	28.68	29.03	28.60	32.11	23.09	29.12	29.82	0.25	21.92
	Southern	11.23	11.54	11.26	11.37	12.93	12.99	14.17	14.93	13.76	13.98	18.79	16.94	19.10	-2.64	21.42
Phosphatic	Northern	30.45	29.98	31.45	32.17	31.77	28.82	28.12	28.61	23.00	28.05	19.28	19.95	18.42	8.87	11.58
	Central	27.71	29.34	27.18	27.69	26.05	25.26	24.44	27.40	19.86	25.58	24.11	42.42	15.26	9.61	15.66
	Western	27.94	27.56	27.90	27.24	28.45	29.82	31.13	33.78	24.25	28.68	30.55	33.24	52.05	0.47	22.70
	Southern	13.91	13.12	13.47	12.90	13.73	16.11	16.30	10.21	12.89	17.69	26.06	04.39	14.27	4.84	64.55
Potassic	Northern	61.42	62.64	52.33	53.22	48.27	45.97	42.08	46.70	36.84	36.83	29.86	32.12	33.91	-2.70	41.51
	Central	13.42	12.46	15.81	17.46	21.01	15.09	20.61	23.71	16.49	19.18	24.01	18.99	18.04	-8.70	60.46
	Western	21.38	20.60	24.66	22.54	20.74	26.08	21.77	23.94	27.67	28.10	29.55	30.31	30.44	-9.07	69.89
	Southern	03.78	04.30	07.20	06.78	09.98	12.86	15.54	05.65	19.00	15.89	16.59	18.58	17.61	-16.44	78.90
Total	Northern	33.24	32.31	34.44	12.72	33.77	32.10	32.79	29.46	30.19	28.96	27.37	25.97	30.98	2.75	10.81
	Central	28.23	28.61	26.90	30.73	26.48	26.15	20.39	26.03	25.52	25.88	25.74	23.82	27.21	19.30	10.81
	Western	26.75	27.22	26.96	39.93	27.53	28.48	31.14	29.55	29.38	30.73	33.32	36.84	33.83	0.82	10.94
	Southern	11.70	11.85	11.70	16.62	12.22	13.27	15.69	14.97	14.91	14.43	13.56	13.38	07.97	22.47	12.38

Source: Department of Economic and Statistical Analysis, Government of Haryana (2001-2015)

The table 4.2.5 shows fertilizer consumption in Haryana zone wise. Percent share of fertilizer nitrogenous was decreased in northern and central zones. Whereas it is increased in western and southern zones. Percentage of phosphatic was decreased in northern and central zones, whereas it increased in other three zones. Except southern zone percentage share of consumption K increased in other three zones. Except western zone total fertilizer consumption decreased in other three zones. There is much disparity in consumption of fertilizer in Haryana. CAGR in case of nitrogenous is negative in southern zone. Highest CAGR in northern zone, it was followed by central and western zone. In case of consumption phosphatic, highest in northern zone with 8.87 percent whereas lowest in western zone with 0.25 percent during the period. In case of K CAGR is negative in all zones. Total fertilizer highest in southern zone, whereas lowest in western zone with 0.82.

Lowest disparities in use of nitrogenous consumption in northern zone. And in use of consumption phosphatic, highest disparities in southern zone, and in use of consumption K, highest disparities in southern zone. There are not much disparities in total fertilizer consumption over the period.

4.2.6) Consumption of Pesticides

Pesticide is a chemical preparation for destroying plant, fungal, or animal pests. Use of pesticides in India began in 1948 when DDT (dichloro diphenyl tri chloroethane) was imported for malaria control and BHC (benzene hexachloride) for locust control. India started pesticide production with manufacturing plant for DDT and BHC, HCH (hexachloro cyclohexane) in the year 1952. In 1958, India was producing over 5000 metric tonnes of pesticides. Currently, a total of 215 pesticides are registered for manufacture and use in India. Pesticide is manufactured as technical grade products and consumable pesticides are then formulated the installed capacity of technical grade pesticide was 1, 45,800 tonnes during march 2005, and the production in the financial year 2004-05 was 94,000 tonnes. The annual growth of pesticide production between the years 2001 to 2005 was 14.9%.

Benefits of Pesticides

- **Improving Productivity**

Food grain production, which stood at a mere 50 million tonnes in 1948-49, had increased almost fourfold to 198 million tonnes by the end of 1996-97 from an estimated 169 million hectares of permanently cropped land. This result has been achieved with the use of high yield varieties of seeds, advanced irrigation technologies and agricultural chemicals⁴.

- **Protect Crop losses**

In medium land rice even under puddle conditions during the critical period warranted an effective and economic weed control practice to prevent a reduction in rice yield due to weeds that ranged from 28 to 48% based on comparisons that included control (weedy) plots⁵.

- **Quality of Food**

In the countries of first world, it is now observed that a diet containing fresh fruit and vegetables far outweigh potential risks from eating very low residues of pesticides in crops⁶. eating fruit and vegetables regularly reduces the risk of many cancers, high blood pressure, heart disease, diabetes, stroke, and other chronic diseases.

The table 4.2.6 shows the percentage share of consumption of pesticides in Haryana zone-wise. It is increased in northern zone, whereas decrease in central and southern zones. Percentage share of pesticides in northern zone is highest during 2008-09. There is not much disparity in southern zones, it is increased 14.2 per cent to 7.15 per cent during 2001-02 to 2014-15. CAGR was positive highest in southern zone and lowest in western zone, 6.81 and 1.51 per cent respectively. It was negative in northern zone. C.V shows highest variation in consumption of pesticides in southern zone and lowest in central zone over the period.

⁴ Employment Information: Indian Labour Statistics 1994. Chandigarh: Labour Bureau, Ministry of Labour, 1996

⁵ Behera, Basudev, Gauri Shankar Singh. (1999) Studies on Weed Management in Monsoon Season Crop of Tomato. Indian Journal of Weed Science, Vol. 31

⁶ Brown, Ian UK Pesticides Residue Committee Report (2004)

Table 4.2.6 Zone wise percentage share of consumption pesticides in Haryana

Years	Northern Zone	Central Zone	Western Zone	Southern Zone
2001-02	31.99	23.96	29.42	14.62
2002-03	29.13	20.76	36.78	13.32
2003-04	28.21	20.84	37.49	13.46
2004-05	29.17	20.53	37.04	13.26
2005-06	29.28	20.40	37.20	13.12
2006-07	29.39	20.22	37.43	12.96
2007-08	29.95	20.18	36.97	12.89
2008-09	46.87	21.25	24.93	06.95
2009-10	41.82	21.65	29.32	07.21
2010-11	41.87	21.65	29.29	07.19
2011-12	36.20	23.87	32.04	07.89
2012-13	41.73	21.81	29.26	07.21
2013-14	41.64	21.84	29.36	07.26
2014-15	41.67	21.85	29.32	07.15
CAGR	-0.41	2.16	1.51	6.81
C.V	18.70	5.57	13.41	21.01

Source: Department of Economic and Statistical Analysis ,Government of Haryana, (2001-2015)

Figure 4.2

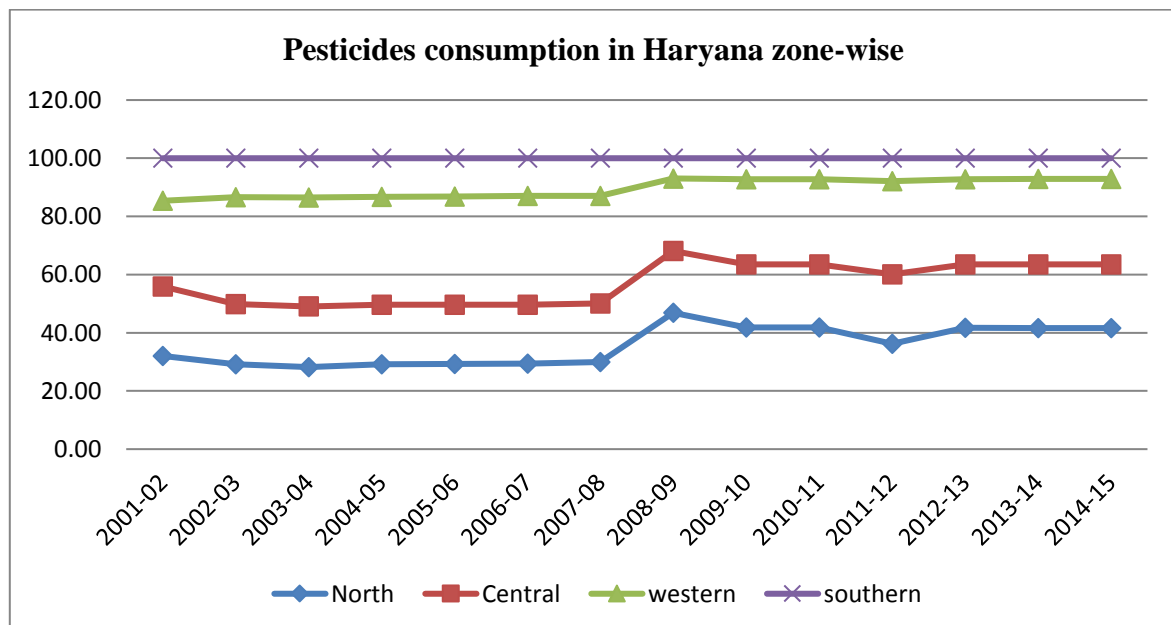


Figure 4.2 Shows consumption of pesticides in Haryana zone-wise during 2001 to 2015. It was highest in 2008-09 in all zones of Haryana.

4.2.7) Zone-wise Tractors in Haryana

The productivity of farms depends greatly on the availability use of farm power by the farmers. Agricultural machines increase productivity of land and labour by meeting timeliness of farm operations and increase work out-put per unit time. The different sizes of tractors are manufactured in India ranging from less than 25 HP to more than 45 HP but most popular range is 31- 35 HP. The tractor sales show that their demand is region specific. Punjab, Haryana and western UP constituted the major tractor market in 1980's with 55-57 percent share of total all India states.

Years	Northern zone	Central zone	Western zone	Southern zone
2001-02	26.51	27.35	31.81	14.35
2002-03	26.82	27.70	30.42	15.06
2003-04	25.94	29.44	29.38	15.24
2004-05	24.35	27.63	27.57	20.45
2005-06	24.85	32.41	28.14	14.60
2006-07	23.97	28.22	29.46	18.36
2007-08	24.77	26.43	33.21	15.55
2008-09	24.85	32.41	28.14	14.60
2009-10	25.43	27.32	31.14	16.14
2010-11	25.36	27.28	31.28	16.01
2011-12	25.10	27.38	31.39	16.13
2012-13	25.42	27.36	31.36	15.68
2013-14	27.32	29.40	33.71	19.55
2014-15	27.32	29.40	33.71	19.56
CAGR	-1.13	-1.43	-1.33	1.99
C.V	5.46	8.99	9.16	20.79

Source: Department of Economic and Statistical Analysis , Government of Haryana, (2001-2015)

The table 4.2.7 shows zone wise percentage share of tractors in Haryana. Trend share of tractors was increased in northern zone with 26.51 to 27.32 percentages over the period. In

central zone it was increased 27.35 to 29.40 percentages but it was highest in 2005-06 and 2008-09 with 32.41 percentages during the period. Except southern zone CAGR of tractors was negative in other three zones.

Figure 4.3

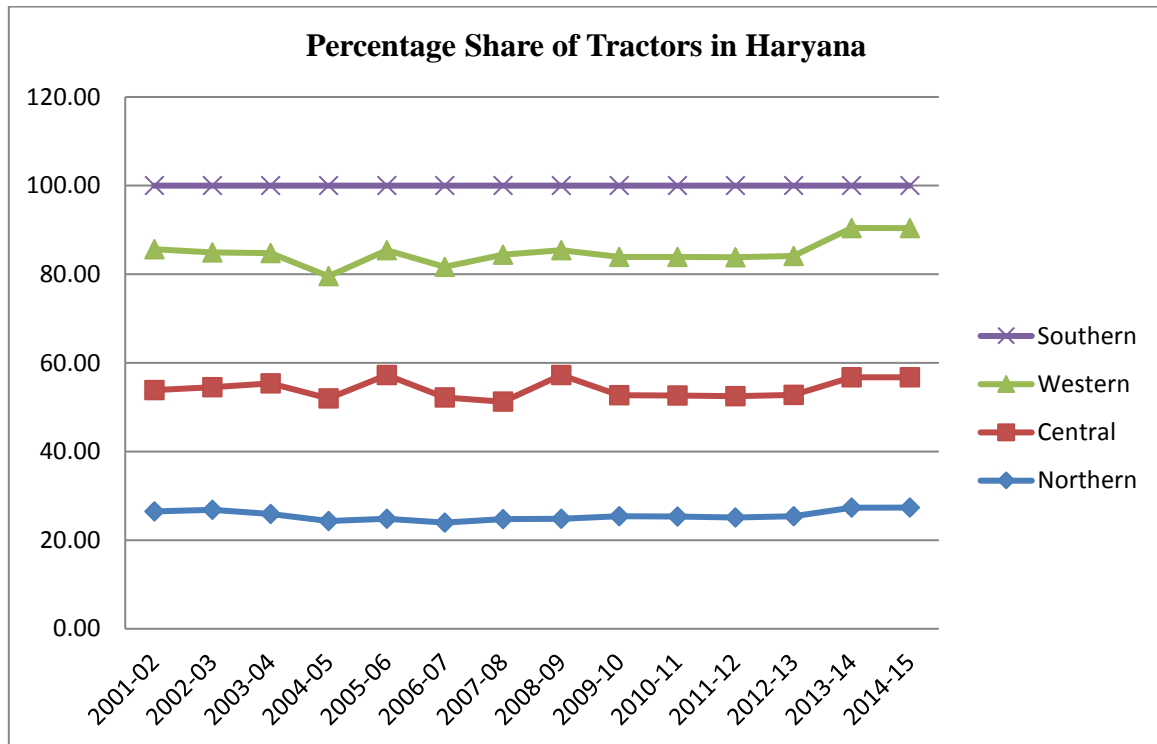


Figure 4.3 Shows zone wise percentage share of tractors in Haryana. It is increased except southern zone.

4.2.8) Agricultural Credit: Agricultural credit is a determinant of agriculture productivity. Large population of India depends on agriculture .For increasing growth of agriculture important role not only purchasing power through creating on farm and off farm employment opportunities but with contribution to price stability. Credit societies provides loan for cultivators in order to help and increase the inputs per unit of area. It also helps farmers invest in credit assets to generate output through technology, method of business management. Credit institutions serving agriculture sector need in three stages. In first stage, which lasted from 1947 to 1969, cooperative agencies provide credit. In second stage after 1969, commercial banks were assigned in providing agriculture credit. In the last stage, from 1975 regional rural banks were established for providing agriculture credit. According to World

Bank paper 1975, “credit is often a key element in the modernisation of agriculture. Not only can credit remove financial constraint but it also accelerates the adoption of new technology. Credit facilities’ are also an integral part of process of commercialisation of the rural economy. However, no amount of credit even at the most reasonable rates can guarantee higher productivity or income among the rural poor, as the success depend upon many factors including the availability of input and services, sound credit policies, well managed institutions and appropriate delivery chann”

Three factors are contributed increased for agriculture growth use of inputs, technologies’ and technical efficiency. The agriculture credit in India existence formal and informal sources of credit supply. An informal source includes friends, relatives, money lenders and traders. On the other hand a formal source includes commercial banks, cooperatives and micro-finance institutions (MFI).

At the time of independence the money lenders are the most important source of agricultural credit. In 1951 the year of beginning of planning in the country, money lenders considered for as much as 71.6 per cent of the rural credit. This primary position of the money lenders was due to the lack of any value with alternative source of rural credit for the farmers. The Government of India measures to help the farmers to meet their needs just like major commercial banks nationalization in 1969 followed by 6 more banks in 1970, the national bank for agriculture and rural development (NABARD) in 1982 and Regional Rural Banks provides both short and medium term loans for agriculture activities.

The national bank for agriculture and rural development (NABARD) is the top institute at the national level for agricultural credit and provides refinance. Reserve Bank has prepared (SACP) Special Agricultural Credit Plans in 1994. Flow of agriculture credit with the beginning of SACP, has increased significantly from 8,255 core rupees in 1994-95 to 1, 22,443 crore rupees in 2006-07 which were higher than 1, 18160 crore rupees. In 2011-12, it was 1, 32,423. During 2007-08, 7.29 million farmers were financed by commercial banks and RRBs as the target of 5 million farmers fixed by UFM for the year. During the period 2011-12, bank has increased level the credit 2, 90,000 crore rupees. Share of agriculture in GDP

has declined during the years, the number of people dependent on agriculture for their food. Credit flows has increased to the agriculture sector.

Table 4.2.8 Targets and actual disbursement to agriculture by banks (rupees crore)								
	(2004-05)		(2006-07)		(2007-08)		(2011-12)	
Agency	Target	Disbursement	Target	Disbursement	Target	Disbursement	Target	Disbursement
Commercial. Banks	57,000	81,481	1,19,000	16,64,486	1,50,000	1,56,850	1,65,000	1,62,000
Cooperative. Banks	39,000	31,231	41,000	42,480	52,000	43,684	62,000	60,000
Regional Rural Banks	8,500	12,404	15,000	20,435	23,000	24, 814	33,000	30,000
Total	1,05,000	1,25,309	1,75,000	2,29,401	2,25,000	2,25, 348	2,60,000	2,52,000
Source: NABARD, RRBS: Regional Rural Banks.								

The table 4.2.8 shows target and the actual disbursements to agriculture by banks of the last four years. In commercial bank target was 57000 and disbursement was 81481 during 2004-05 .but during 2011-12 target was 165000 and disbursement was 162000. In cooperative bank target during 2004-05 was 39000 and disbursements was 41000. whereas in 2011-12 target was 62000 and disbursements was 60000. In case of RRBs target was 8500 and disbursements but 2007-08 target was 23000 and disbursements was 60,000. Total target was 105000 crore and disbursements was 175000 whereas 2011-12 was 1, 60,000 and disbursements was 2, 52,000 crore. Total disbursements were highest to target during 2004-05 but during 2011-12 target was highest comparison to disbursements.

Table 4.2.9 Percentage share of agricultural credit societies in the Haryana for the years 2001-02 to 2014-15

Years	Number of agricultural societies	Number of membership agric. Soc.	Share capital	Own capital	Working capital	Loan advanced	Loan recovered	Over dues
2001-02	15.09	9.29	5.88	7.29	4.18	5.75	5.61	37.71
2002-03	15.02	9.30	6.09	6.03	14.04	7.44	6.38	35.23
2003-04	15.09	9.69	6.46	8.62	4.75	7.20	8.16	16.27
2004-05	14.90	8.71	8.44	4.12	6.93	10.01	9.00	0.84
2005-06	14.90	9.56	7.86	4.12	6.92	9.52	8.46	0.84
2006-07	5.96	1.04	1.19	9.75	1.15	4.71	8.23	0.07
2007-08	3.51	10.10	10.72	10.04	9.54	11.48	10.77	1.45
2008-09	3.81	10.42	12.24	11.92	11.65	7.31	7.67	1.98
2009-10	3.84	10.58	12.46	11.58	12.77	10.09	9.88	2.03
2010-11	3.95	10.60	13.95	12.48	14.28	12.42	12.09	2.06
2011-12	3.93	10.70	14.71	14.05	13.79	14.07	13.75	1.53
2012-13	3.92	10.65	14.72	14.17	13.80	14.27	13.77	1.52
2013-14	3.85	10.62	14.85	14.30	13.89	14.40	13.82	1.51
2014-15	3.80	10.60	14.90	14.36	13.95	14.42	13.90	1.50

Source: Department of Economic and Statistical Analysis, Government of Haryana,(2001-2015)

The table 4.2.9 shows agricultural credit societies in the Haryana for the years 2001-02 to 2014-15. Percentage share of number of membership, share capital, own capital, working capital, loan advanced and loan recovered were increased during the period, whereas number of agriculture societies was decreased. Number of agricultural societies decrease with 15.09 to 3.80 percentages during the period. Share capital increased with 5.88 to 14.90 percent and working capital increased 4.18 to 13.95 percent during the period. On the other hand overdue was decreased with 37.71 to 1.50 percent during the period.

Table 4.2.10 Percentage share of agriculture credit societies in Haryana (2001-02 to 2014-15)

Items	Number of agricultural societies in Haryana				Membership agriculture Societies in Haryana			
	Northern	Central	Western	Southern	Northern	Central	Western	Southern
2001-02	25.02	23.88	31.10	19.99	26.44	25.72	27.59	20.25
2002-03	25.25	23.91	31.28	19.55	26.41	26.03	27.10	20.46
2003-04	25.67	23.76	31.18	19.38	26.86	25.36	27.45	20.34
2004-05	25.87	23.82	30.92	19.38	28.41	29.35	21.12	21.12
2005-06	25.87	23.82	30.92	19.38	25.89	26.75	28.12	19.24
2006-07	27.72	17.97	34.19	20.12	22.43	28.63	29.15	19.79
2007-08	30.72	23.91	26.53	18.85	27.59	26.68	26.89	18.84
2008-09	35.05	22.67	24.60	17.68	27.95	27.71	25.84	18.51
2009-10	35.51	22.61	24.36	17.52	27.92	27.55	26.14	18.39
2010-11	37.00	22.14	23.84	17.03	28.17	27.30	26.13	18.39
2011-12	36.14	22.27	24.30	17.29	28.14	27.54	26.01	18.31
2012-13	35.86	20.99	26.82	16.33	27.91	27.51	25.94	18.65
2013-14	36.01	20.99	26.53	16.47	27.92	27.46	25.95	18.67
2014-15	35.82	20.91	26.61	16.67	27.94	27.42	25.98	18.66
CAGR	6.79	10.53	10.78	11.03	-1.50	-1.56	-0.64	-0.53
C.V	55.44	77.85	80.73	78.25	10.76	8.21	9.51	3.19
Source: Department of Economic and Statistical Analysis, Government of Haryana, (2001-2015)								

The table 4.2.10 shows number of agriculture credit and number of membership in Haryana zone wise. In northern zone percentage share of number of agricultural societies increased with 25.01 to 35.82 in Haryana during the period. In central zone and western zone it was decreased. Percentage share of membership agricultural societies was increased in northern and central zones and decreased in western and southern zone of Haryana. CAGR was positively in number of societies over the period. It was highest in southern zone, but lowest in northern zone. CAGR of number of societies is highest in southern zone compared to other zones. CAGR of membership was negatively recorded. Highest variations in number of agricultural societies in Haryana in western zone and in case of membership agricultural societies in northern zone over the period.

The table 4.2.11 shows share capital and own capital in Haryana zone-wise. Percentage share of share capital was increased in northern and central zones of Haryana during the period. Own capital was increased in central and western zone during the period .In southern zone it was decreased with 14.15 to 18.45 percent over the period. CAGR was negative recorded in all zone of Haryana in share capital and own capital. Highest negative CAGR of share capital in northern zone on the other hand own capital CAGR was highest in central zone. C.V shows highest variation in share capital and own capital in Haryana. Highest variation in central zone in case of share capital of agriculture credit societies in Haryana, whereas in case of own capital, highest variations in northern zone.

Items	Share capital of agriculture credit societies in Haryana				Own capital agriculture credit societies in Haryana			
	Northern	Central	Western	Southern	Northern	Central	Western	Southern
2001-02	31.49	21.71	30.99	15.81	30.05	17.93	27.84	24.18
2002-03	32.39	21.41	29.94	16.25	27.46	19.02	29.00	24.52
2003-04	31.00	21.94	31.34	15.72	28.49	18.25	26.63	26.63
2004-05	32.10	22.89	29.22	15.78	44.61	18.33	18.01	19.05
2005-06	34.45	20.74	31.36	13.45	41.90	17.21	23.00	17.89
2006-07	28.79	25.97	34.34	10.90	57.02	12.96	16.57	13.45
2007-08	31.82	22.36	31.14	14.68	33.42	21.89	30.33	14.36
2008-09	30.82	22.41	32.43	14.34	22.06	31.99	34.95	11.01
2009-10	32.15	19.74	32.43	15.68	30.29	22.40	32.93	14.38
2010-11	31.87	23.44	30.42	14.27	31.65	23.10	31.60	13.65
2011-12	31.64	23.09	30.87	14.41	29.52	21.09	36.49	12.89
2012-13	28.84	25.29	32.84	13.03	30.43	23.48	32.37	13.71
2013-14	31.87	23.44	30.42	14.27	31.65	23.10	31.60	13.65
2014-15	35.09	21.85	29.33	13.72	30.06	24.34	30.14	15.45
CAGR	-6.88	-6.20	-5.79	-5.20	-3.88	-5.95	-4.42	-0.75
C.V	33.29	37.26	34.44	31.49	49.22	48.84	46.02	25.87

Source: Department of Economic and Statistical Analysis, Haryana, (2001-2015)

The table 4.2.12 shows working capital and loan advanced in Haryana zone wise. Except southern zone, percentage share of working capital is increased in other three zones during the period. Percentage share of loan advanced increased in central and western zone during the period. CAGR of share capital and working capital was negative in all zones of Haryana. Highest disparities in central zone in case of working capital and lowest in southern zone. On the other hand in case of loan advanced southern zone have lowest disparities.

Table 4.2.12 Percentage shares of agriculture credit societies (2001-02 to 2014-15)								
Years	Working capital agriculture credit societies in Haryana				Loan advanced agriculture credit societies in Haryana			
	Northern	Central	Western	Southern	Northern	Central	Western	Southern
2001-02	29.93	24.10	25.78	20.19	31.84	24.99	24.89	18.28
2002-03	30.56	25.37	22.19	21.88	27.84	25.81	22.48	23.87
2003-04	26.36	21.23	23.09	29.32	28.78	23.32	26.59	21.31
2004-05	32.96	22.71	24.60	19.74	32.68	24.42	23.88	19.03
2005-06	33.03	22.76	24.65	19.55	34.35	20.54	25.10	20.00
2006-07	32.38	20.25	29.61	17.76	50.30	14.89	14.56	20.24
2007-08	32.86	21.60	25.57	19.96	35.45	12.96	28.70	22.89
2008-09	32.91	23.36	25.90	17.83	29.52	23.02	28.07	19.39
2009-10	31.09	24.70	25.36	18.85	29.35	27.22	27.16	16.26
2010-11	31.08	23.81	24.25	20.86	30.18	25.36	25.61	18.85
2011-12	36.59	21.84	28.51	13.06	26.92	28.19	26.60	18.29
2012-13	29.28	26.46	21.36	22.91	31.93	27.45	24.60	16.02
2013-14	29.18	26.48	21.40	22.94	31.46	27.04	24.28	17.22
2014-15	29.47	26.46	21.28	22.79	32.24	25.41	22.40	19.95
CAGR	-9.14	-9.85	-7.99	-10.03	-7.32	-8.07	-7.36	-7.81
C.V	51.19	56.26	49.45	55.21	34.18	45.29	34.65	29.14

Source: Department of Economic and Statistical Analysis , Government of Haryana,(2001-2015)

The table 4.2.13 shows loan covered and over dues in Haryana zone wise during 2001 to 2014-15. Loan recovered increased in central and western zone over the period. In northern and southern zone it is decreased. Over dues increased in northern and western zone over the period. Except western zone CAGR under loan recovered was negative recorded in other three zones. On the other side CAGR in over dues it was positive in northern and southern zone with 27.18 to 28.76 percent respectively. Highest variations in northern in case of loan recovered, on the other hand in case of over dues highest variations in western zone.

Items	Loan recovered agriculture credit societies in Haryana				Over dues agriculture credit societies in Haryana			
	Northern	Central	Western	Southern	Northern	Central	Western	Southern
2001-02	32.82	25.03	24.08	18.07	33.66	23.43	23.89	19.01
2002-03	24.90	30.02	25.19	19.90	34.44	24.32	27.12	14.13
2003-04	25.70	29.70	22.81	21.79	31.09	24.91	26.43	17.56
2004-05	31.94	24.51	23.74	19.81	29.22	25.73	27.14	17.91
2005-06	33.97	26.06	25.24	14.73	29.22	25.73	27.14	17.91
2006-07	31.83	26.48	26.56	15.13	32.32	17.14	12.88	37.65
2007-08	28.48	25.99	24.75	20.78	33.97	22.63	24.57	18.84
2008-09	30.13	22.26	28.16	19.45	31.31	23.93	27.98	16.78
2009-10	27.37	26.39	27.03	19.21	34.45	22.05	27.92	15.57
2010-11	29.35	26.52	26.27	17.87	34.60	20.60	27.75	17.05
2011-12	31.04	26.04	25.76	17.16	34.01	21.81	26.69	17.49
2012-13	32.38	27.20	25.25	15.17	36.86	16.93	27.91	18.30
2013-14	32.43	26.93	25.51	15.13	36.83	17.06	28.08	18.03
2014-15	32.37	27.18	25.29	15.16	37.02	16.96	27.86	18.15
CAGR	-7.21	-7.35	8.88	-6.14	27.18	-5.70	-8.85	28.76
C.V	39.21	36.37	35.33	28.20	49.02	39.40	49.87	41.19

Source: Department of Economic and Statistical Analysis , Government of Haryana,(2001-2015)

4.3 Disparities in Agriculture Production and Agricultural Inputs Districts-wise in Haryana

The table 4.3.1 shows canal irrigation in Haryana district-wise. Percentage share of canal irrigation was increased in kurukshatra, Jhajjar, Jind and Sirsa whereas, other fifteen districts was decreased. Zero CAGR in panchukula and Yamunanagar. CAGR was recorded negative in kurukshatra, Panipat, Jhajjar, Jind and Sirsa with values of -3.58, -0.72, -0.39,-1.94 and -0.12 percent respectively over the period. Highest positive CAGR in Faridabad with 25.85 percent, it was followed by Gurgaon, Ambala, Sonipat, Kaithal, Rewari, Karnal, with 21.90, 11.63, 9.60, 8.60, 5.08 and 4.86 percent respectively. Lowest growth rate in Fatehbad .There are not much disparities in Panchkula and Yamunanagar. Highest disparities in canal irrigations in Mahendragarh, it was followed by Rewari, Kaithal, Gurgaon and Karnal canal irrigation in Haryana.

The table 4.3.2 shows percentage of tube well irrigation in Haryana district wise. Percentage share of Tube well irrigation was increased in Ambala, Panchkula, Yamunanagar, Kaithal, Karnal, Sonipat, Rohtak, Jhajjar, Gurgaon, Jind and Hisar. There are not much disparities in trend share in Ambala, Kurukshatra and Panipat. CAGR is negatively recoded in Ambala, Panhukula, Yamunanagar, Kaithal, Karnal, Sonipat, Rohtak, Jhajjar, Gurgaon, Rewari, Fatehabad and Sirsa with 0.56, -3.99,-0.58, -4.59, -2.03, -2.33, -2.76, -3.09, -1.58, -12.72, -0.64 and -2.29 percent respectively. Highest positive CAGR in Faridabad with 8.74 it was followed by Bhiwani, Jind and Kurukshatra with 8.54, 3.54 and 1.59 respectively. Lowest in Panipat with 0.11 percent .There are not much disparity in CAGR of Panipat and Mahendergarh over the period. Lowest disparities in Ambala and Rewari with 5.27 and 8.69 percent coefficient of variation respectively.

Table 4.3.1 District –wise percentage share canal irrigation in Haryana (2001-2 to 2014-15)

Years / Districts	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	CAGR	C.V
Ambala	08.28	07.69	09.47	09.47	08.28	08.28	08.88	08.28	08.28	08.28	08.28	02.37	02.37	01.78	11.63	38.77
Panchkula	06.25	06.25	06.25	06.25	06.25	06.25	06.25	06.25	06.25	18.75	06.25	06.25	06.25	06.25	0.01	46.77
Yamunanagar	06.98	06.98	06.98	06.98	09.30	06.98	06.98	06.98	06.98	06.98	06.98	06.98	06.98	06.98	0.02	18.70
Kurukshatra	06.59	06.59	06.59	06.59	06.59	06.59	06.59	06.59	06.59	07.56	06.83	06.83	08.54	10.98	-3.58	17.28
Kaithal	08.80	08.80	08.00	08.80	08.80	08.80	08.80	08.80	08.89	08.62	08.09	00.89	01.16	02.76	8.65	42.59
Karnal	09.56	09.15	07.65	04.64	04.64	09.29	09.97	10.25	09.29	05.87	04.78	04.92	05.05	04.92	4.86	32.70
Panipat	07.24	04.39	04.39	03.62	07.49	07.49	07.49	07.24	08.79	08.79	07.24	08.53	09.30	08.01	-0.72	24.76
Sonipat	07.38	07.47	07.47	07.47	07.56	07.38	07.56	07.56	07.56	07.56	06.67	08.10	08.19	02.05	9.60	21.09
Rohtak	08.22	09.04	07.41	06.84	09.12	09.12	07.41	07.25	05.46	06.03	06.03	06.03	06.03	06.03	2.25	18.18
Jhajjar	07.37	07.68	07.68	07.16	05.71	04.05	05.81	08.09	08.09	08.20	07.37	07.68	07.37	07.78	-0.39	16.36
Faridabad	14.62	15.79	13.45	13.45	12.87	09.36	09.36	08.77	00.58	00.58	00.00	00.58	00.00	00.58	25.85	39.35
Gurgaon	17.78	16.67	17.78	17.78	17.78	01.11	01.11	01.00	02.22	02.22	02.22	01.11	01.11	01.11	21.90	43.35
Rewari	07.69	03.85	07.69	06.00	07.69	07.69	07.69	07.69	07.69	07.69	07.69	15.38	07.69	03.85	5.08	46.55
Mahendergarh	09.09	09.09	06.06	06.06	06.06	06.06	24.24	03.03	06.06	06.06	06.06	03.03	03.03	06.06	2.94	53.68
Bhiwani	07.99	07.87	09.24	09.41	10.01	08.76	08.53	08.53	04.50	04.97	04.97	05.03	05.09	05.09	3.27	28.72
Jind	06.79	06.84	06.84	07.81	06.64	06.54	06.44	06.38	05.46	05.77	09.86	06.79	08.89	08.94	-1.94	17.75
Hisar	08.10	07.33	07.90	06.90	07.24	07.24	07.27	07.27	07.24	06.84	06.94	06.84	06.74	06.17	1.96	11.69
Fatehabad	07.68	07.68	07.91	07.91	08.19	03.84	04.07	07.46	07.46	07.06	07.63	07.57	07.97	07.57	0.11	19.30
Sirsa	07.91	07.08	07.30	07.30	07.27	04.56	06.47	06.69	06.58	07.24	06.94	07.91	08.71	08.05	-0.12	13.56

Source: Department of Economic and Statistical Analysis , Government of Haryana , (2001-2015)

Table 4.3.2 District –wise percentage share of tube -wells in Haryana (2001-2 to 2014-15)

Years / Districts	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	CAGR	C.V
Ambala	6.90	7.33	6.76	7.90	7.19	7.47	6.83	7.05	6.98	6.98	6.41	7.33	7.40	7.47	-0.56	5.27
Panchkula	10.00	8.46	4.62	5.38	1.54	1.54	2.31	3.85	3.85	10.77	8.46	10.00	11.54	17.69	-3.99	45.09
Yamunanagar	7.29	7.42	7.49	7.56	7.49	7.35	7.35	0.76	8.38	7.70	7.70	7.84	7.77	7.90	-0.58	26.05
Kurukshatra	7.18	7.18	7.24	7.24	7.24	7.30	7.24	7.30	5.94	7.06	7.24	7.24	8.59	6.00	1.29	8.64
Kaithal	5.16	5.16	5.76	5.16	5.16	5.40	5.34	5.46	7.14	6.24	11.46	11.52	11.10	9.96	-4.59	36.62
Karnal	5.76	6.40	6.55	7.97	7.92	6.45	6.10	6.05	7.92	7.58	8.12	7.68	7.82	7.68	-2.03	12.09
Panipat	6.91	8.21	7.56	8.53	6.91	6.70	7.02	7.34	6.91	6.59	7.34	6.80	6.37	6.80	0.11	8.53
Sonipat	9.22	7.41	7.72	6.01	5.61	5.81	6.71	7.01	4.11	6.71	7.01	7.82	6.01	12.83	-2.33	48.47
Rohtak	5.62	5.62	4.49	9.21	6.74	4.49	6.74	5.39	10.11	8.54	8.54	8.54	7.64	8.31	-2.76	25.35
Jhajjar	6.71	5.62	6.99	11.64	6.03	9.04	7.95	6.03	4.79	5.75	4.66	7.81	6.58	10.41	-3.09	28.68
Faridabad	10.17	10.06	9.43	7.55	9.96	8.81	10.38	9.43	7.34	3.67	3.46	3.35	3.25	3.14	8.74	32.35
Gurgaon	6.18	7.05	6.96	9.76	7.15	7.15	7.25	6.67	7.25	6.67	5.41	7.15	7.63	7.73	-1.58	13.37
Rewari	6.78	6.51	7.33	8.07	7.33	7.26	6.38	7.26	6.24	7.26	6.45	7.26	7.39	8.48	-1.58	8.69
Mahendergarh	8.75	9.12	8.90	9.27	8.90	2.39	5.76	6.06	8.98	9.27	3.52	8.83	1.65	8.60	0.12	38.66
Bhiwani	5.24	6.60	6.72	3.14	7.27	8.14	8.57	8.63	8.88	7.21	7.15	10.17	10.60	1.66	8.54	34.63
Jind	8.46	7.15	7.23	0.74	7.64	7.64	7.15	6.66	8.63	9.70	10.02	8.46	5.34	5.18	3.57	32.34
Hisar	1.72	2.86	4.20	14.50	1.72	1.72	4.39	6.11	4.20	11.64	12.02	11.64	11.64	11.64	-12.78	46.30
Fatehabad	6.12	5.95	6.28	4.79	4.96	11.90	11.65	6.78	6.61	8.02	7.27	6.86	6.12	6.69	-0.64	29.43
Sirsa	4.56	5.53	5.63	0.00	6.98	7.08	10.09	10.09	10.57	10.57	10.09	7.27	5.24	6.30	-2.29	41.83

Source: Department of Economic and Statistical Analysis, Government of Haryana (2001-2015)

Table 4.3.3 District wise Number of Agriculture Credit Societies in Haryana (2001-2 to 2014-15)

Years/ Districts	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	C.V	CAGR
Ambala	4.83	4.85	4.70	4.72	4.99	7.35	5.76	7.40	7.17	6.97	7.01	7.02	7.04	6.97	49.77	7.19
Panchkula	1.87	1.91	1.91	1.89	2.14	3.81	1.92	1.77	1.75	1.70	1.71	1.72	1.72	1.70	69.95	10.76
Yamunanagar	4.58	4.93	4.91	5.05	5.15	2.83	5.06	6.27	6.05	6.04	5.14	5.15	5.16	5.11	65.92	9.19
Kurukshatra	4.54	4.48	4.50	4.97	4.65	3.19	6.28	7.07	7.80	9.75	9.66	9.67	9.70	9.75	42.11	3.46
Kaithal	5.47	4.85	4.91	5.42	5.24	3.45	5.24	5.31	5.41	5.26	5.30	5.46	5.48	5.42	68.40	9.52
Karnal	6.08	5.66	6.04	6.16	5.87	4.78	6.81	7.56	7.64	7.59	7.17	7.80	7.98	7.74	58.59	7.43
Panipat	3.89	3.54	3.85	4.07	3.81	1.95	4.89	4.98	5.10	4.95	4.98	4.99	5.01	4.95	59.85	7.75
Sonapat	5.76	5.78	5.76	5.83	5.95	1.95	5.76	5.31	5.25	5.26	4.83	5.15	5.16	5.26	77.15	10.75
Rohtak	2.84	2.93	3.20	2.75	3.56	5.49	3.66	3.54	3.50	3.41	3.43	3.28	3.44	3.41	61.08	8.05
Jhajjar	4.26	4.40	4.34	4.35	5.24	8.41	4.01	3.70	3.66	3.56	3.58	3.59	3.60	3.56	74.04	11.46
Faridabad	5.35	5.34	4.34	4.76	5.74	8.68	5.24	4.82	4.78	4.64	4.67	4.68	4.69	4.64	68.92	10.86
Gurgaon	6.65	6.72	6.69	6.74	6.87	4.43	5.76	5.31	5.25	5.11	5.14	5.15	4.85	4.95	79.98	12.13
Rewari	3.53	3.54	3.89	3.90	3.73	5.31	4.19	4.02	3.98	3.87	3.89	4.06	3.91	4.02	62.95	9.01
Mahendergarh	3.81	3.83	3.45	3.45	3.52	4.78	3.66	3.54	3.50	3.41	3.58	3.59	3.44	3.56	67.13	10.58
Bhiwani	8.23	8.68	8.92	8.38	8.50	4.87	6.98	6.59	6.53	6.35	6.39	6.40	6.42	6.81	81.03	11.54
Jind	6.00	5.91	6.24	5.83	5.99	4.07	5.24	4.82	4.78	4.64	4.67	4.68	4.69	4.64	78.68	11.80
Hisar	8.23	8.43	8.23	8.34	8.50	16.03	8.20	7.56	7.48	7.28	6.85	7.33	7.36	7.28	70.30	11.02
Fatehabad	5.56	5.66	5.96	5.63	4.65	1.86	5.06	4.66	4.62	4.64	4.67	4.68	4.69	4.64	79.97	11.46
Sirsa	8.52	8.55	8.15	7.76	5.91	6.73	6.28	5.79	5.73	5.57	7.32	5.62	5.63	5.57	80.55	13.42

Source: Department of Economic and Statistical Analysis, Government of Haryana (2001-2015)

The table 4.3.3 shows number of credit societies in Haryana district -wise. Trend share of number of agricultural societies has decreased in all districts of Haryana except Rewari, Rohtak, Panipat, Karnal, Kurukshatra, Yamunanagar and Ambala. Highest CAGR in Sirsa with 13.42 percent, it was followed by Gurgaon with 12.13. There are not much disparities in Jhajjar, Bhiwani, Jind, Hisar and Fatehabad, which was 11.46, 11.54, 11.80, 11.02 and 11.46 percent CAGR respectively over the period. There are not much disparities in Yamunanagar and Rewari. CAGR of Sonipat, Faridabad and Panchkula was 10.75, 10.86 and 10.76 respectively over the period. C.V shows variation in number of credit societies in Haryana. Highest disparities in number of credit societies in Bhiwani, Sirsa, Gurgaon, Fatehabad, Jind and Sonipat with 81.03,80.55,79.98,79.97,78.68 and 77.75 percent coefficient of variation respectively.

The table 4.3.4 shows own capital under agriculture credit societies in Haryana district wise. Except Yamunanagar, Karnal, Jhajjar, Gurgaon, Mahendergarh, Bhiwani and Fatehabad, trend share of own capital was increased in all districts in Haryana over the period. CAGR was positive in Panchkula, Hisar, Fatehabad and Sirsa. Highest disparities in Jind, Hisar and Rohtak districts in own capital under agriculture credit societies in Haryana.

Table 4.3.4 District-wise own capital under agriculture credit societies in Haryana (2001-2 to 2014-15)

Years/ Districts	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	CAGR	C.V
Ambala	6.02	5.95	5.50	6.20	5.55	6.01	6.48	7.23	5.73	5.53	4.80	4.92	6.06	8.45	-6.19	31.46
Panchkula	1.61	1.59	1.95	2.29	2.30	2.41	1.58	1.73	1.71	1.76	1.62	1.66	1.89	9.48	3.00	22.78
Yamunanagar	6.34	6.29	5.95	5.82	9.11	4.60	7.40	6.57	6.74	6.65	6.03	6.28	4.89	4.45	-6.00	28.66
Kurukshatra	6.20	6.50	9.31	5.03	5.09	7.37	5.47	5.71	4.65	4.60	4.44	4.45	5.36	5.93	-5.65	21.53
Kaithal	5.85	5.75	4.91	5.88	7.73	7.03	5.68	5.67	5.19	4.97	4.92	5.17	5.85	5.79	-7.50	22.03
Karnal	9.31	9.23	8.49	7.81	3.94	7.20	7.74	6.79	6.72	8.70	8.29	8.93	8.05	8.42	-7.86	34.13
Panipat	4.18	3.80	3.55	3.99	3.78	5.21	4.76	5.25	4.73	4.40	4.17	4.20	4.70	4.48	-12.84	31.13
Sonipat	3.34	3.37	3.17	3.67	4.21	4.91	3.58	4.49	3.43	3.44	3.27	3.43	4.15	3.65	-9.71	27.31
Rohtak	2.61	2.28	2.74	2.33	3.85	3.72	2.69	3.72	2.76	3.35	3.07	3.49	2.22	5.37	-7.37	43.91
Jhajjar	5.72	5.69	5.21	5.85	4.10	3.72	5.94	6.67	7.03	6.97	6.31	7.35	4.42	5.40	-10.99	40.03
Faridabad	3.05	2.28	2.74	2.33	3.85	3.72	2.69	3.72	2.76	3.35	3.07	3.49	2.22	5.37	-9.7	27.34
Gurgaon	3.72	3.70	3.71	4.81	4.59	5.06	3.95	3.98	4.03	3.89	3.54	3.67	2.16	2.61	-9.83	23.68
Rewari	3.74	3.72	3.76	4.63	5.31	5.57	4.07	3.77	3.96	3.85	3.55	4.10	4.92	4.86	-4.93	27.40
Mahendergarh	3.71	3.62	3.34	3.83	5.49	4.59	3.00	2.91	2.80	2.65	2.40	2.71	3.14	2.13	-7.74	15.90
Bhiwani	6.60	6.55	6.06	7.14	6.76	4.02	6.77	6.64	6.88	6.62	12.46	7.25	4.36	4.98	-9.96	51.18
Jind	3.99	4.31	7.67	4.84	4.95	5.30	4.00	3.97	3.99	4.36	3.97	4.04	5.86	9.97	-6.22	47.46
Hisar	7.74	8.03	7.48	7.85	6.40	6.94	10.55	3.40	10.98	10.71	9.71	10.07	11.62	7.28	5.37	45.98
Fatehabad	7.40	7.54	6.73	7.43	6.54	6.25	6.16	6.56	6.20	5.89	6.33	6.40	7.18	7.09	5.19	25.13
Sirsa	8.87	9.06	6.63	7.32	6.83	6.51	6.84	11.58	8.88	8.38	7.78	8.66	9.52	6.53	5.19	36.12

Source: Department of Economic and Statistical Analysis, Government of Haryana (2001-2015)

Table 4.3.5 District wise working capital under agriculture credit in Haryana (2001-2 to 2014-15)																
Year/ Districts	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	CAGR	C.V
Ambala	4.66	4.69	4.70	5.53	6.19	6.04	5.90	7.84	5.59	4.96	5.06	5.74	5.78	8.03	8.62	49.48
Panchkula	8.68	7.86	7.07	5.19	4.62	3.69	2.26	2.14	2.38	2.42	2.37	2.39	2.46	2.90	2.30	61.84
Yamunanagar	4.29	4.34	4.38	4.84	4.82	4.66	4.72	5.51	5.39	5.62	5.32	5.25	5.66	1.73	0.62	53.65
Kurukshatra	4.32	4.35	4.38	5.84	6.06	5.78	5.99	4.90	4.75	4.91	5.10	5.05	5.69	6.63	7.95	46.74
Kaithal	4.51	4.49	4.70	5.84	5.40	5.52	5.52	6.22	6.10	5.86	6.15	6.28	5.47	4.96	6.08	48.32
Karnal	6.67	7.58	5.96	6.59	8.06	7.64	8.14	8.04	7.88	8.20	8.62	7.89	8.35	11.15	10.52	51.81
Panipat	3.88	3.70	4.05	4.16	5.02	5.02	5.24	5.17	5.09	4.97	4.93	4.83	5.03	4.99	6.95	47.49
Sonapat	4.51	4.63	4.99	5.53	5.39	5.52	5.48	5.52	5.54	5.12	5.05	4.97	5.44	6.95	7.97	46.41
Rohtak	2.25	2.15	2.07	2.44	2.41	2.65	2.72	2.67	2.80	2.99	2.89	2.81	3.20	4.55	9.53	58.35
Jhajjar	3.69	3.70	4.05	4.50	3.95	3.95	4.41	4.59	4.82	4.67	4.42	4.76	5.15	6.70	9.10	54.31
Faridabad	3.77	3.91	4.05	5.18	5.08	5.02	5.73	4.71	4.33	5.41	5.64	5.54	5.78	5.99	7.67	52.28
Gurgaon	6.64	6.57	6.42	6.90	6.97	6.57	6.29	7.19	7.96	9.46	9.17	9.21	7.15	8.17	9.34	53.99
Rewari	3.65	3.28	3.38	3.81	3.42	3.43	3.64	3.18	3.76	3.41	3.18	2.63	2.87	2.78	4.05	36.24
Mahendergarh	3.66	3.59	3.71	3.91	3.57	3.43	3.93	3.13	2.80	2.58	2.38	2.59	2.71	2.15	2.64	28.62
Bhiwani	6.00	6.03	5.96	7.24	7.04	7.02	7.15	4.85	6.35	6.03	6.22	6.89	6.48	1.38	-2.29	49.75
Jind	4.14	4.30	5.05	5.53	5.03	6.30	5.52	8.85	5.45	5.18	5.27	5.45	5.75	6.07	7.70	48.31
Hisar	6.00	5.92	5.96	6.59	7.37	8.05	7.71	4.91	8.81	8.33	8.62	8.25	7.50	9.64	11.8	53.85
Fatehabad	3.77	3.91	4.05	4.84	4.58	4.66	4.54	5.58	4.88	4.76	4.54	4.46	4.55	2.46	3.19	45.96
Sirsa	4.89	5.00	5.05	5.53	5.02	5.02	5.12	5.00	5.32	5.13	5.07	5.00	4.95	2.77	2.43	43.11

Source: Department of Economic and Statistical Analysis, Government of Haryana (2001-2015)

The table 4.3.5 shows the district- wise working capital under agriculture credit societies in Haryana. Trend Share of working capital has increased in whole districts except Yamunanagr, Karnal Jhajjar, Gurgaon, Mahendergarh, Bhiwani and Fatehabad during the period. Bhiwani recorded negative growth rate during the study (-2.29 percent) while it is recorded highest positive growth for Hisar followed by Karnal with 10.52 percent respectively. Lowest CAGR of working capital observed in Panchkula (0.62 percent).

The table 4.3.6 shows district-wise loan advanced under agriculture credit societies in Haryana. Trend share of loan advanced increased in all districts of Haryana except Ambala, Gurgaon, Rewari, Mahendergarh and Sirsa. Highest negative CAGR in Bhiwani with -12.79, it was followed by Panchkula Kurukshatra, Rohtak , Panipat, Yamunanagr , Faridabad with 11.80,-11.10,-11.06, -10.90,-10.32,-10.07 percent respectively over the period. Lowest CAGR in Rewari with -4.80. Highest disparities in Panchkula, Kurukshatra and Kaithal district and lowest in Mahendragarh in loan advanced under agriculture credit societies in Haryana,

Table 4.3.6 District wise loan advanced agriculture credit societies in Haryana (2001-2 to 2014-15)

Years / Districts	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	CAGR	C.V
Ambala	6.11	4.05	5.73	5.49	5.78	5.26	4.83	3.35	3.77	3.48	4.22	5.02	4.52	4.42	-7.85	43.62
Panchkula	3.46	2.43	3.23	2.80	2.36	2.26	1.96	2.62	1.73	1.95	1.98	2.05	2.08	4.62	-11.80	73.91
Yamunanagar	5.34	4.03	6.03	5.79	5.15	4.90	4.09	4.62	4.45	4.42	4.33	4.39	4.42	5.64	-10.32	51.17
Kurukshatra	4.90	33.75	5.33	5.21	5.11	5.40	5.36	2.64	3.90	4.57	4.77	4.51	4.19	5.84	-11.10	87.40
Kaithal	4.90	3.71	5.33	4.89	5.24	5.46	5.65	5.31	5.87	5.77	6.18	6.11	5.82	7.24	-12.42	61.36
Karnal	8.47	5.72	8.00	7.16	8.69	8.57	8.18	9.63	8.51	9.48	10.42	10.04	10.69	8.45	-9.96	51.87
Panipat	4.90	3.33	4.37	6.24	5.59	5.46	6.39	6.98	6.00	6.39	5.58	5.01	4.86	5.66	-10.90	47.22
Sonipat	6.22	4.37	6.11	5.53	5.86	4.98	6.58	5.16	4.97	4.30	4.83	4.61	4.81	5.39	-9.04	44.64
Rohtak	3.34	2.17	3.35	3.77	3.25	3.66	3.81	2.91	3.13	3.97	4.24	3.87	4.20	3.96	-11.06	56.08
Jhajjar	7.57	5.23	7.33	6.37	4.89	5.47	5.69	4.63	6.63	5.96	5.39	6.38	6.17	5.15	-7.45	41.87
Faridabad	4.72	3.29	4.58	5.20	5.98	6.06	5.79	4.83	5.57	6.02	6.36	5.36	5.55	4.80	-10.07	46.32
Gurgaon	5.78	3.96	5.73	5.23	5.94	5.99	5.46	7.27	6.03	6.02	5.30	4.84	4.90	3.99	-7.56	32.91
Rewari	3.89	2.64	3.84	3.93	3.48	2.88	2.37	3.65	4.82	3.91	3.61	4.84	4.62	1.78	-4.80	47.26
Mahendgarh	4.36	2.94	4.22	3.93	3.64	3.92	4.12	4.95	2.68	2.57	2.21	2.66	2.35	2.82	-7.13	32.74
Bhiwani	4.46	3.39	4.97	5.23	6.27	6.25	6.59	6.34	6.30	6.71	6.08	7.39	7.80	6.96	-12.79	59.27
Jind	4.36	2.98	4.22	5.23	5.18	4.69	4.79	4.27	5.71	5.47	5.13	6.00	6.18	5.58	-11.54	57.11
Hisar	6.22	4.24	6.11	6.27	7.30	8.06	8.28	9.32	9.51	8.07	7.59	6.56	6.68	7.06	-10.79	46.05
Fatehabad	3.92	2.75	4.09	5.23	4.74	5.26	4.97	4.25	4.62	4.93	5.62	4.80	4.64	4.45	-10.79	48.22
Sirsa	7.10	5.01	7.44	6.52	5.57	5.47	5.10	7.25	5.82	6.00	6.15	5.55	5.52	6.18	-9.07	44.63

Source: Department of Economic and Statistical Analysis , Government of Haryana (2001-2015)

Table 4.3.7 District wise loan recovery under agriculture credit societies in Haryana (2001-2 to 2014-15)

Years / Districts	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	CAGR	C.V
Ambala	6.22	6.19	6.65	6.12	5.92	5.42	4.90	1.72	3.64	3.72	4.34	5.67	5.84	5.60	4.73	42.93
Panchkula	3.72	3.71	3.24	2.67	2.48	2.27	2.04	1.76	1.35	1.85	2.06	0.85	0.84	0.87	-2.45	25.56
Yamunanagar	6.01	5.99	5.59	5.42	5.43	4.97	3.32	5.58	4.49	4.16	5.10	4.83	4.77	3.10	1.70	28.68
Kurukshatra	5.35	5.33	5.37	5.27	5.13	4.96	5.22	3.27	3.62	4.35	4.96	4.76	4.67	4.38	4.20	34.40
Kaithal	5.69	5.67	5.59	4.96	5.45	5.52	5.73	6.36	5.81	5.92	5.99	6.46	6.80	6.24	5.82	41.45
Karnal	8.09	8.02	7.13	7.22	7.81	7.73	8.16	10.60	8.27	8.65	10.01	10.67	10.81	10.36	6.52	48.17
Panipat	5.00	4.99	4.31	3.72	5.17	5.14	5.89	7.90	6.00	6.63	5.85	5.60	5.71	4.66	4.92	38.85
Sonipat	6.22	6.46	7.04	6.11	5.62	5.52	5.87	2.86	6.27	5.44	4.42	4.51	6.27	3.67	2.42	32.57
Rohtak	6.22	6.46	7.04	6.11	5.62	5.52	5.87	2.86	6.27	5.44	4.42	4.51	6.27	3.67	6.55	44.81
Jhajjar	7.71	7.62	6.02	5.10	4.81	4.89	5.27	5.28	5.81	5.96	5.69	6.12	5.38	6.07	3.99	35.23
Faridabad	4.43	4.37	8.31	7.25	6.63	6.07	5.81	6.92	5.31	5.05	5.11	3.01	2.82	2.67	2.55	24.62
Gurgaon	4.55	4.49	3.98	6.54	6.03	6.07	6.04	7.90	6.22	6.19	5.62	5.10	3.99	3.79	4.31	31.16
Rewari	3.48	3.44	3.50	3.38	3.34	4.34	4.44	4.44	4.78	3.86	3.80	4.47	5.22	5.65	8.02	49.71
Mahendergarh	4.28	4.63	3.98	3.80	3.81	4.06	4.18	4.06	2.90	2.76	2.32	2.59	2.63	3.04	3.43	20.88
Bhiwani	4.91	4.84	4.25	6.46	6.05	6.07	5.76	7.99	6.26	6.91	5.79	7.08	7.09	8.73	8.55	49.08
Jind	4.33	4.28	3.98	4.83	5.37	5.14	4.95	5.27	5.50	5.64	5.09	6.02	5.44	8.21	8.91	52.21
Hisar	5.96	5.88	5.55	7.22	7.36	7.53	8.23	9.50	10.27	8.12	7.55	7.18	6.50	6.06	5.40	35.17
Fatehabad	4.20	4.15	4.69	4.48	4.59	5.13	5.40	4.81	4.77	5.03	5.61	5.08	5.36	6.61	7.85	45.96
Sirsa	6.96	7.07	6.72	5.88	5.74	5.69	5.00	0.78	5.73	6.20	6.33	5.91	5.72	6.69	3.65	43.98

Source: Department of Economic and Statistical Analysis , Government of Haryana(2001-2015)

The table 4.3.7 shows district-wise loan recovery under agriculture credit societies in Haryana. Trend share of loan recovery in Ambala decreased 6.22 to 5.60 percent during the period. Percentage share of loan recovery in kurukshatra, Karnal, Rewari, Bhiwani, Jind, Hisar and Fatehabad. Lowest loan recovery in Panchkula compared to other district. It was followed by Rohtak and Rewari. Highest CAGR of loan recovery in Jind with 8.91 percent during the period. It was followed by Bhiwani and Rewari with 8.55 and 8.02 percent respectively. Lowest CAGR of loan recovery was 1.70 percent in Yamunanagar. Highest disparities in Jind and lowest in Panchkula in loan recovery under agriculture credit societies in Haryana.

Conclusion

In Haryana irrigated area canal irrigation of northern zone was continuously declined but it was highest in 2009-10 with 11.54 percent; whereas in central zone it was increased. Trend share of canal irrigation in western and southern zone has declined over the study. CAGR in canal irrigated was negative in western zone. It was highest positive in northern zone, but percentage share has been increased. Growth rate of tube-wells negative in western zone whereas highest positive in central zone of Haryana. In case of tube-well highest disparities in western zone with 21.81 percent coefficient of variation whereas lowest in northern zone with 4.21 percent coefficient of variation. CAGR of area under HYV seeds for the crop rice was negative in all zones of Haryana. Growth rate of area under HYV for crop wheat positive in three zones except southern. CAGR of bajra negative in all zones of Haryana. CAGR under crop maize positive highest in central with 2.82, it was followed by northern, southern and western zones respectively. CAGR of total fertilizer highest in southern zone, whereas lowest in western zone. Consumption of pesticides is increased in northern zone, whereas decrease in central and southern zones. Rainfall was increased in northern, central and

southern zones, whereas it was decreased in western zone. Highest variations in rainfall in southern zone with 25.29 percent.

Percentage share of number of membership, share capital, own capital, working capital, loan advanced and loan recovered were increased during the period, whereas number of agriculture societies was decreased. Number of agricultural societies decrease with 15.09 to 3.80 percentages over the study. Share capital increased with 5.88 to 14.90 percent and working capital increased 4.18 to 13.95 percent over the study. On the other hand overdue was decreased with 37.71 to 1.50 percent during the period.

Major Findings

- Out of total area irrigation by tube-well irrigated maximum as comparison to canal and other sources of irrigations.
- Trend share of wheat increased in three zones except southern zone of Haryana. Area under HYV under bajra increased in all zones.
- Except southern zone CAGR of tractors was negative in other three zones.
- Consumption of pesticides is increased in northern zone, whereas decrease in central and southern zones.
- Number of membership, share capital, own capital, working capital, loan advanced and loan recovered of agricultural credit societies was increased over the study, whereas number of agriculture societies was decreased.
- In case of canal irrigation CAGR was negative recorded in kurukshatra, Panipat, Jhajjar, Jind and Sirsa with -3.58, -0.72, -0.39,-1.94 and -0.12 percent respectively over the period. Highest positive CAGR in Faridabad with 25.85 percent, it was followed by

Gurgaon, Ambala, Sonipat, Kaithal, Rewari, Karnal, with 21.90, 11.63, 9.60, 8.60, 5.08 and 4.86 percent respectively.

- Percentage share of tube well irrigation was increased in Ambala, Panchukula, Yamunanagar, Kaithal, Karnal, Sonipat, Rohtak, Jhajjar, Gurgaon, Jind and Hisar.
- Rainfall was increased in Karnal, Panipat, Sonipat, Jhajjar, Faridabad, Gurgaon, Jind, Fatehabad and Sirsa during the period.
- Highest disparities in canal irrigations in Mahendragarh, followed by Rewari, Kaithal, Gurgaon and Karnal canal irrigation in Haryana.
- Highest disparities in Kaithal with 45.62 and lowest in Yamunanagar with 11.27 percent rainfall.