ECONOMIC ANALYSIS OF PRICE PARITY OF MAJOR CROPS IN MAHARASHTRA STATE OF INDIA

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Abstract: Agriculture is the most important sector of Indian economy. Agriculture sector employs more than 58 per cent of population and contribute 14.3 per cent of GDP in economy during the 2010-11. The producers have always been alleging that increase in the prices of their produce were not in proportion to increase in the input prices. A sound price policy is one that ensures remunerative prices to the producers and also reasonable prices to the consumers and which reduces the regional imbalances in agricultural income by maintaining parity between costs, prices and income of different agricultural commodities. The objectives of the study were to examine the changes in input-output prices of selected crops and to evaluate the parity between the costs, prices and income from these crops. The present investigation was based on the secondary data of the state cost of cultivation scheme, Got. of Maharashtra. The data pertains to the 18 years i.e. from 1991-91 to 2008-09 were considered for the said study. The results indicated that the indices at current and constant prices of major input for selected crops shown tremendous increase during the period under consideration. The parity indices of gross income to per quintal cost of production of jowar and wheat affected the profitability adversely. Compound growth rates (CGR) of input prices were more than double to the prices of output at MSP and FHP, except at MSP for wheat. The price-cost ratios of cereals were less than unity, indicating that output prices were not covering the costs. Thus the increase in MSP, FHP and thereby income of the crop is not sufficient to cover the cost of cultivation of all cereals.

Keywords: agriculture crops production, analysis, cereals crops, input price.

Introduction: Agriculture is the most important sector of Indian economy. Agriculture sector employs more than 58 per cent of population and contribute 14.3 per cent of GDP in economy during the 2010-11. The share of agriculture in the total export accounts for 9.9 per cent for the year 2010-11 (Economic Survey of India 2012). During the year 1950-51, the food grain production was 50 million tonnes and now it has reached to 254.70 million tonnes in the year 2010-11. After introduction of green revolution, the production performance during mid sixties has been increased tremendously. The use of high yielding varieties, fertilizers, irrigation and new technology has resulted in increased production. This is major achievement for self sufficiency of foodgrains.The key issue of this sector in the Maharashtra State is low productivity in foodgrains as compared to national and inter state productivity. During 2009-10, the average yield per hectare of foodgrains of the State was 1,074 kg., which was far below national average of 1,798 kg. Limited availability of agricultural land, quality of land and rainfed agriculture has restricted the scope for increase in agricultural production There has been a lot of controversy about the costs and prices of agricultural commodities. Doubts have been expressed that the prices of agricultural commodities fixed by the Government are not in harmony with increase in the cost of production, which has been rising at a very high rate due to increase in the inputs prices. Among the different crops, the major producing states have often accused the price policy in favour of their major produced crops. The producers have always been alleging that the increase in the prices of their produce were not in proportion to increase in the input prices. A sound price policy is one that ensures remunerative prices to the producers and also reasonable prices to the consumers and which reduces the regional imbalances in agricultural income by maintaining parity between costs, prices and income of different agricultural commodities. Maharashtra is a state where large numbers of crops are grown. Hence, information of their comparative costs and prices are of vital importance to all the concerned. The objectives of the study are to examine the changes in input-output prices of selected crops and to evaluate the parity between the costs, prices and income from these crops.

Methodology: The present investigation was based on the secondary data collected in " The Scheme for Creating Permanent Machinery for Studying the Cost of Cultivation of Principal Crops in Maharashtra state" sponsored by the Government of Maharashtra. The data pertained to the 18 years i.e. from 1991-91 to 2008-09 were considered for the said study. The sample farms in different villages spread over 10 districts which were fall under three zones i.e. Western Maharashtra plain zone, Scarcity zone and Assured rainfall zone of Western Maharashtra were considered for the present study and two cereal crops taken into consideration i.e Rabi Jowar and wheat

Price Parity: The parity indices between output prices of selected crops and inputs as a whole were

obtained for each crop separately by using the following formulae (Patel et. al. 1997).

$$RPIjt = \frac{FHPIjt}{AIPit} \times 100$$

Where,

RPIjt =Parity index between prices of inputs and output of jth crop in tth year

FHPIjt=Index of farm harvest prices for jth crop in tth year and

AIPjt =Index of average inputs prices of jth crop in tth year

The parity indices between output prices and per quintal cost of cultivation of selected crops was worked out as under,

$$RCIjt = \frac{FHPIjt}{CPIjt} \times 100$$

Where,

RCIjt = Parity index between output prices and per quintal cost of production of jth crop in tth year

FHPIjt =Index of farm harvest prices for jth crop in tth year and

CPIjt=Index of per quintal cost of Production jth crop in tth year

Parity indices of gross income from cash crops (RGII) and per quintal cost of production (CP) were worked out by dividing the gross income index (GII) for the particular crop by per quintal cost of production.

$$RGIIjt = \frac{GIIjt}{CPIjt} \times 100$$

Where,

RGIIjt = Parity index between gross income and per quintal cost of jth crop in t th year

GIIjt =Gross income index of jth crop in tth year and

CPIjt=Index of per quintal cost of production for jth crop in tth year

In addition, usual statistical formulae such as compound growth rates, coefficients of variation and price-cost ratios were also employed for judging the parity.

Results and discussion:

Prices of Agricultural inputs : It can be revealed from the table 1 and 2 that the prices of all the major inputs used in production of Jowar and wheat crop has sharply increased showing an increase of 407.65 and 406.60 per cent, respectively, during the period 1991-92 to 2008-09. The maximum increase was noticed for manure and irrigation in case of Jowar and wheat, respectively. This may be attributed to shortage of manure and increase in maintenance cost of irrigation structure and electricity bills. The indices of all the input prices showed continuous increasing trend from 1991-92 to 2008-09. The average input indices at current prices of Jowar and wheat crops revealed that the input indices have shown almost six times sharp rise at current prices in case of Jowar and wheat crops.

Cost of production of Cereals : The per quintal average cost of production of Jowar and wheat during 1991-92 to 2008-09 along with their indices at current and constant prices were shown in table 3 and revealed that the indices of cost of production per quintal of Jowar and wheat have considerably increased during the period 1991-92 to 2008-09.

Table 1 Indices of input prices of Wheat in Western Maharashtra

Year	Hum. lab (Rs/days)	Bul. lab (Rs/days)	Machine (Rs/ hr)	Seed (Rs/Kg)	Manure (Rs/qtl)	Fertilizers (Rs/kg)	Irrigation Rs/ha	Average Indices
	At current prices							
1991-92	100.00 (18.75)	100.00 (46.65)	100.00 (47.27)	100.00 (5.9)	100.00 (12.00)	100.00 (6.09)	100.00 (296.93)	100.00
1992-93	127.04	151.34	105.52	114.41	108.33	106.73	222.27	133.66
1993-94	130.13	169.45	97.17	99.49	125.00	120.69	151.80	127.68
1994.95	130.51	187.82	88.72	137.29	154.83	157.31	185.96	148.92
1995-96	151.84	183.15	144.91	162.37	242.83	171.76	135.82	170.38
1996-97	160.32	228.96	113.43	208.31	333.33	158.46	297.42	214.32
1997-98	190.40	240.00	158.66	166.27	319.33	180.62	229.20	212.07
1998-99	224.80	288.64	182.46	198.31	275.83	191.30	362.98	246.33
1999-2000	246.88	284.35	212.63	208.31	362.67	192.61	363.08	267.22
2000-01	264.69	332.86	134.97	193.73	668.25	179.15	300.32	296.28
2001-02	270.40	428.55	204.00	194.07	549.42	201.48	465.60	330.50
2002-03	283.89	454.15	259.49	258.31	421.67	221.67	340.62	319.97
2003-04	291.84	446.58	321.73	264.92	513.92	142.36	420.97	343.19
2004-05	316.59	635.33	491.45	264.58	500.17	213.46	170.31	370.27
2005-06	375.73	587.05	498.20	242.03	508.33	216.09	413.26	426.50
2006-07	325.60	614.96	467.89	329.32	428.75	213.79	509.39	412.81
2007-08	417.33	542.57	733.89	335.42	464.75	221.35	686.65	486.00
2008-09	441.49	736.91	462.70	360.00	614.58	225.94	704.56	506.60

Table 2 Indices of input prices of Rabi Jowar in Western Maharashtra								
Year	**Hum. lab (Rs/days)**	**Bul. lab (Rs/days)**	**Machine (Rs/ hr)**	**Seed (Rs/Kg)**	**Manure (Rs/qtl)**	**Fertilizers (Rs/kg)**	**Irrigation** Rs/ha	**Average** Indices
	At current prices							
1991-92	100.00 (21.05)	100.00 (45.65)	100.00 (38.19)	100.00 (6.23)	100.00 (15.00)	100.00 (3.25)	100.00 (101.00)	100.00
1992-93	126.41	137.15	69.68	120.71	113.33	107.69	100.00	110.71
1993-94	122.14	157.68	94.55	94.86	197.27	121.85	102.97	127.33
1994.95	153.63	208.46	112.59	139.33	166.00	111.08	103.96	142.15
1995-96	146.51	211.26	260.02	192.46	191.33	133.85	108.91	177.76
1996-97	142.76	229.42	246.40	176.24	193.33	318.15	123.76	204.30
1997-98	223.66	267.34	264.47	174.64	180.33	322.46	128.71	223.09
1998-99	238.72	281.62	189.50	225.04	197.33	215.38	138.61	212.32
1999-2000	289.83	326.51	275.31	237.24	200.00	413.54	148.51	270.13
2000-01	215.15	300.09	145.38	218.14	250.35	256.92	163.37	238.44
2001-02	244.18	437.04	244.72	213.96	420.73	255.08	173.27	284.14
2002-03	247.22	436.65	386.25	234.51	333.27	299.08	178.22	302.17
2003-04	237.96	535.18	296.70	210.91	399.93	329.85	183.17	313.39
2004-05	326.37	597.81	288.98	191.17	403.93	266.77	193.07	324.01
2005-06	343.52	602.39	381.41	182.50	493.20	233.85	247.52	354.91
2006-07	342.95	691.11	401.94	187.64	563.80	307.69	297.03	398.88
2007-08	407.89	632.33	481.98	269.02	520.80	348.62	371.29	433.13
2008-09	460.81	785.13	535.90	293.90	788.33	313.23	376.24	507.65

production of Jowar have increased by 344.54 per cent i.e. from Rs. 291.24 in 1991-92 to Rs. 1294.69 in 2008-09. The indices of cost of production per quintal for wheat has shown an increase of 339.06 per cent during the said period, which has risen from Rs.292.06 per quintal in 1991-92 to Rs. 1282.31in 2008-09. In real sense, similar trend of increase in indices of per quintal cost of production were also noticed at constant prices of Jowar and wheat, during the period 1991-92 to 2008-09. The highest increase in the indices of per quintal cost of production for Jowar and wheat was observed and it was due to the declined productivity of these crops.

Table 3 Cost of production of Cereal crops in Western Maharashtra						
Year	**Cost of production (Rs/qtl)**		**Indices**			
	Wheat	**Jowar**	**At current prices**		**At constant prices**	
1991-92	292.06	291.24	100.00	100.00	100.00	100.00
1992-93	339.28	324.22	116.17	111.32	105.55	101.15
1993-94	402.17	437.92	137.70	150.36	115.47	126.09
1994.95	468.88	527.54	160.54	181.14	119.56	134.90
1995-96	517.51	703.95	177.19	241.71	122.20	166.69
1996-97	552.38	541.68	189.13	185.99	124.69	122.62
1997-98	703.79	563.27	240.97	193.40	152.16	122.13
1998-99	768.21	599.29	263.03	205.77	156.77	122.64
1999-2000	727.77	866.68	249.19	297.58	143.81	171.74
2000-01	768.63	567.77	263.18	194.95	141.74	105.00
2001-02	884.52	665.91	302.86	228.65	157.45	118.87
2002-03	687.00	525.46	235.23	180.42	118.26	90.71
2003-04	690.38	575.00	236.38	197.43	112.69	94.12
2004-05	819.65	586.39	280.64	201.34	125.65	90.14
2005-06	936.12	859.32	320.52	295.06	137.48	126.56
2006-07	993.34	1080.97	340.12	371.16	138.39	151.02
2007-08	969.69	1120.38	332.02	384.69	129.20	149.70
2008-09	1282.31	1294.69	439.06	444.54	169.28	171.39

Growth in Output Prices of Cereals: The prices of Jowar and wheat as announced by the Government and Farm Harvest Prices (FHP) along with their index numbers from 1991-92 to 2008-09 have been analyzed in the table 4 and 5. The prices of major cereals as announced by the Government had shown an increasing trend and it ranged from 380.00 per cent in case of Jowar and 309.52 per cent in case of wheat during the period 1991-92 to 2008-09. Even though, the Minimum Support Prices (MSP) showed an increase of more than 3 times at current prices. The real increase (Constant prices) in prices was 85.06 per cent and 57.89 per cent in case of Jowar and wheat, respectively during the period from 1991-92 to 2008-09. The index numbers of MSP of wheat showed an increasing trend from 1991-92 to 2008-09. However, the prices of jowar have shown an decreasing trend upto the year 1996-97 then it has shown an increasing trend. As regards the farm harvest prices, the farm harvest prices of major cereals at current prices have increased form 126.18 per cent in case of jowar and 135.02 per cent in case of wheat during the period under consideration. The indices of current Farm Harvest Prices showed a continuous increasing trend. In case of wheat, the index numbers at constant Farm Harvest Prices were less than 100 in case of Jowar and wheat crops, respectively.

Table 4 Minimum support prices and indices of major Cereal crops

Year	Minimum Support Price (MSP) (Rs/qtl.)		Indices			
	Wheat	Jowar	At current prices		At constant prices	
1991-92	225	210	100.00	100.00	100.00	100.00
1992-93	275	240	122.22	114.29	111.05	103.84
1993-94	330	260	146.67	123.81	122.99	103.82
1994.95	350	280	155.56	133.33	115.85	99.30
1995-96	360	300	160.00	142.86	110.34	98.52
1996-97	380	310	168.89	147.62	111.34	97.32
1997-98	510	360	226.67	171.43	143.13	108.25
1998-99	550	390	244.44	185.71	145.69	110.69
1999-2000	580	415	257.78	197.62	148.77	114.05
2000-01	610	445	271.11	211.90	146.02	114.13
2001-02	620	485	275.56	230.95	143.26	120.07
2002-03	620	485	275.56	230.95	138.53	116.11
2003-04	630	505	280.00	240.48	133.49	114.64
2004-05	640	515	284.44	245.24	127.35	109.80
2005-06	650	525	288.89	250.00	123.92	107.23
2006-07	750	540	333.33	257.14	135.63	104.63
2007-08	1000	620	444.44	295.24	172.95	114.89
2008-09	1080	860	480.00	409.52	185.06	157.89

Table 5 Farm harvest prices and indices of major cereal crops

Year	Farm Harvest Prices (FHP) (Rs/qtl.)		Indices			
	Wheat	Jowar	At current prices		At constant prices	
1991-92	434	376	100.00	100.00	100.00	100.00
1992-93	417	299	96.07	79.62	87.29	72.34
1993-94	418	329	96.24	87.51	80.71	73.38
1994.95	441	340	101.57	90.53	75.64	67.42
1995-96	488	400	112.40	106.53	77.51	73.47
1996-97	482	369	110.96	98.18	73.15	64.72
1997-98	560	468	129.10	124.53	81.52	78.64
1998-99	568	474	130.88	126.13	78.00	75.17
1999-2000	636	528	146.54	140.50	84.58	81.09
2000-01	660	542	152.07	144.23	81.90	77.68
2001-02	678	548	156.22	145.82	81.22	75.81
2002-03	683	543	157.37	144.49	79.12	72.64
2003-04	721	562	166.13	149.55	79.20	71.29
2004-05	775	450	178.46	119.74	79.90	53.61
2005-06	811	500	186.75	133.05	80.10	57.07

2006-07	889	655	204.72	174.40	83.30	70.96
2007-08	950	704	218.89	187.39	85.18	72.92
2008-09	1020	850	235.02	226.18	90.61	87.21

Gross income of cereals: From the table 6, it was observed that, the gross income per hectare at prices announced by the Government (MSP) during the period under study had shown maximum increase in the case of Jowar, being 350.12 per cent, followed by Wheat 282.48 per cent, respectively. However, the per hectare gross income at Farm Harvest Prices during the period under consideration had shown the maximum increase in the case of Jowar, being 203.90 per cent, followed by Wheat 97.97 per cent, respectively. From the table 7 it was observed that, the growth in gross income per hectare at current prices of Jowar and wheat crops were 203.90 and 97.97 at current prices, respectively during the period from 1991-92 to 2008-09. The increase in gross income per hectare in case of Jowar was the highest 117.17 per cent at FHP and the lowest gross income of Wheat 76.33 per cent at FHP over a period.This was mainly due to the increase in output prices. The gross income of wheat at current Farm Harvest Prices showed an increasing trend during the said period except in the year 1997-98 due to decline in the productivity of wheat. The variations in gross income of Jowar and Wheat may be attributed more due to productivity fluctuations and less due to the price rise, which can be seen from constant price index. However, it was more due to price variation and less due to productivity differences in wheat.

Table 6 Gross income from major Cereal crops at Minimum Support Prices inWestern Maharashtra

Year	**Gross income at MSP (Rs/qtl.)**		**Indices**			
	Wheat	**Jowar**	**At current prices**		**At constant prices**	
1991-92	6105.57	2686.90	100.00	100.00	100.00	100.00
1992-93	6863.00	3539.76	112.41	131.74	102.13	119.70
1993-94	6047.39	2915.48	99.05	108.51	83.06	90.99
1994.95	7841.14	2370.25	128.43	88.22	95.64	65.70
1995-96	8058.57	3159.05	131.99	117.57	91.02	81.08
1996-97	9798.95	3785.24	160.49	140.88	105.81	92.87
1997-98	8054.81	4080.69	131.93	151.87	83.31	95.90
1998-99	11373.09	6980.46	186.27	259.80	111.02	154.84
1999-2000	15253.76	6408.62	249.83	238.51	144.19	137.65
2000-01	13724.87	7191.60	224.79	267.65	121.07	144.15
2001-02	13885.40	6552.69	227.42	243.88	118.23	126.79
2002-03	15939.96	6768.89	261.07	251.92	131.25	126.65
2003-04	17057.96	4240.63	279.38	157.83	133.19	75.24
2004-05	15274.13	7606.90	250.17	283.11	112.00	126.75
2005-06	14515.00	7511.81	237.73	279.57	101.97	119.92
2006-07	17259.96	7739.92	282.69	288.06	115.02	117.21
2007-08	29372.35	9486.26	481.07	353.06	187.20	137.38
2008-09	23352.43	12094.19	382.48	450.12	147.46	173.54

Parity in prices and income of cereals: In order to examine the impact of changes in input prices on profitability; parity between farm harvest prices to average input prices, farm harvest pries to cost of production and income to cost of production of major cereal crops were worked out in the table 8. The indices of parity between FHP of cereals and average input prices of Jowar was less than 100 during the 18 years of study, indicating thereby relatively higher increase infarm harvest prices of Jowar as compared to rise in the prices of inputs used by the farmers in its production. The parity indices between output prices and input prices decline continuously and it ranged between 43.79 to 75.38 in case of Wheat and 40.04 to 80.51 per cent in case of Jowar, respectively.

Table 7 Gross income from major cereal crops at Farm Harvest Prices in Maharashtra

Year	Gross income at FHP (Rs/qtl.)		Indices			
	Wheat	Jowar	At current prices		At constant prices	
1991-92	11150.83	3951.95	100.00	100.00	100.00	100.00
1992-93	10106.56	4051.25	90.64	102.51	82.35	93.14
1993-94	7493.56	3399.50	67.20	86.02	56.35	72.14
1994.95	9728.87	2698.50	87.25	68.28	64.98	50.85
1995-96	10566.01	3650.77	94.76	92.38	65.34	63.71
1996-97	12230.06	4157.21	109.68	105.19	72.31	69.35
1997-98	8777.62	4717.89	78.72	119.38	49.71	75.38
1998-99	11723.55	7523.10	105.14	190.36	62.66	113.46
1999-2000	16586.56	7321.66	148.75	185.27	85.85	106.92
2000-01	14782.87	8037.44	132.57	203.38	71.40	109.54
2001-02	15060.48	7045.35	135.06	178.28	70.22	92.68
2002-03	17426.76	7275.23	156.28	184.09	78.57	92.55
2003-04	19332.96	4432.72	173.38	112.17	82.65	53.47
2004-05	18445.64	7043.35	165.42	178.22	74.06	79.79
2005-06	18057.24	7305.56	161.94	184.86	69.46	79.29
2006-07	20309.73	8667.74	182.14	219.33	74.11	89.24
2007-08	27955.85	10212.91	250.71	258.43	97.56	100.56
2008-09	22075.03	12009.99	197.97	303.90	76.33	117.17

This implies that level of market prices of Jowar and Wheat crop was not sufficient to cover the increased prices of inputs during the study years. It was also observed that, parity indices of farm harvest prices and per quintal cost of production of Jowar and wheat are less than 100 during the entire study period. Over the period of time, the per quintal cost of production increased at a higher rate as compared to the gross returns from Jowar and Wheat during the year 1997-98 to 2008-09. The parity ratios for gross income to per quintal cost of production in case of Jowar also remained lower than 100 during the entire study period except in the year 2002-03 (102.03). This indicates, over the period of time except above mentioned two year, the gross income of wheat increased at a lower rate as compared to per quintal cost of production.

ble 8 Parity indices between farm harvest prices to input prices, farm harvest prices to cost of production and income to cost of production of major Cereal crops in Maharashtra (At current prices)

Year	FHP / input prices		FHP / Cost		Income / cost	
	Wheat	Jowar	Wheat	Jowar	Wheat	Jowar
1991-92	100.00	100.00	100.00	100.00	100.00	100.00
1992-93	71.88	70.97	82.70	71.52	78.02	92.08
1993-94	75.38	72.60	69.89	58.20	48.80	57.21
1994.95	68.20	66.81	63.26	49.98	54.35	37.70
1995-96	65.97	61.45	63.43	44.07	53.48	38.22
1996-97	51.77	49.28	58.67	52.79	57.99	56.56
1997-98	60.88	59.55	53.57	64.39	32.67	61.73
1998-99	53.13	47.88	49.76	61.30	39.97	92.51
1999-2000	54.84	53.38	58.81	47.21	59.69	62.26
2000-01	51.33	80.51	57.78	73.98	50.37	104.32
2001-02	47.27	54.48	51.58	63.78	44.60	77.97
2002-03	49.18	51.42	66.90	80.09	66.44	102.03
2003-04	48.41	51.54	70.28	75.75	73.35	56.81
2004-05	48.20	40.04	63.59	59.47	58.94	88.52
2005-06	43.79	40.54	58.26	45.09	50.52	62.65
2006-07	49.59	46.72	60.19	46.99	53.55	59.09
2007-08	45.04	46.38	65.93	48.71	75.51	67.18
2008-09	46.39	47.23	53.53	50.88	45.09	68.36

Growth rates of input and output prices of Cereals: The rates of compound growth in average input price, cost of production, output price (at MSP and FHP), income (at MSP and FHP) and coefficients of variations were computed in the table 9 for the entire period (1991-92 to 2008-09) the input cost of Jowar and Wheat has been significantly increased at the rate of 8.48 to 9.40 per cent per annum. However, the cost of production of these crops was significantly increased to the extent of 6.32 to 7.80 per cent per annum. Moreover, the prices of output at MSP and FHP were increased in the range of 4.74 to 7.89 per cent per annum. The maximum (7.89 per cent) increase in MSP was noted in case of wheat. It is further revealed that the gross income at MSP and FHP have been increased in the range of 6.26 to 8.44 per cent per annum. It was noted that the rates of compound growth of input costs were more than double the prices of output at MSP and FHP except MSP for wheat and rate of growth of MSP is relatively higher than the rate of growth of prices of output at FHP. The coefficients of variation of average input prices of Jowar and wheat were 57.83 per cent and 57.06 per cent higher than their cost of production. However, the coefficients of variations of prices and income at minimum support prices were relatively more than the farm harvest prices.

Table 9 Compound growth rates and coefficient of variation in input and output prices of cereals (Period 1991-92 to 2008-09)

Particulars	CGR/CV	Wheat	Jowar
Average input cost	CGR %	**9.40*** **	**8.48*** **
	CV	**57.83**	**57.06**
MSP	CGR %	**7.89*** **	**6.94*** **
	CV	**56.44**	**54.89**
FHP	CGR %	**5.50*** **	**4.76*** **
	CV	**51.68**	**51.16**
Cost of production	CGR %	**7.8*** **	**6.32*** **
	CV	**54.78**	**56.18**
Gross income at MSP	CGR %	**8.44*** **	**8.25*** **
	CV	**58.36**	**57.94**
Gross income at FHP	CGR %	**6.26*** **	**6.86*** **
	CV	**53.38**	**55.52**

Price-Cost ratios of Cereals: From the table 10 it can be revealed that price-cost ratio of Jowar and wheat at MSP and FHP are computed that, price-cost ratios of Wheat and Jowar (at MSP and FHP) is less than unity (except the year 2007-08 in case of Wheat at MSP and the year 2002-03 at FHP of Jowar crop) during period under study indicating thereby increase in cost of production was more than increase in the output prices. The price-cost ratio of Jowar during 2002-03 at FHP and during the year 2007-08 in case of Wheat at MSP was grater than unity indicating thereby increase in output prices is more than the increase in cost of production.

Table 10 Price – cost – ratio of cereal crops in Western Maharashtra

Year	Price-cost-ratio MSP		Price-cost-ratio FHP	
	Wheat	Jowar	Wheat	Jowar
1991-92	0.77	0.72	1.49	1.29
1992-93	0.81	0.74	1.23	0.92
1993-94	0.82	0.59	1.04	0.75
1994.95	0.75	0.53	0.94	0.64
1995-96	0.70	0.43	0.94	0.57
1996-97	0.69	0.57	0.87	0.68
1997-98	0.72	0.64	0.80	0.83
1998-99	0.72	0.65	0.74	0.79
1999-2000	0.80	0.48	0.87	0.61
2000-01	0.79	0.78	0.86	0.95
2001-02	0.70	0.73	0.77	0.82

2002-03	0.90	0.92	0.99	1.03
2003-04	0.91	0.88	1.04	0.98
2004-05	0.78	0.88	0.94	0.77
2005-06	0.69	0.61	0.87	0.58
2006-07	0.76	0.50	0.89	0.61
2007-08	1.03	0.55	0.98	0.63
2008-09	0.84	0.66	0.80	0.66

Summary And Conclusions:

- The indices at current and constant prices of major input for selected crops shown tremendous increase during the period under consideration with a very negligible decrease in some of the crops, that to in the earlier periods. This states that the input prices kept increasing during the period under study with a very few events of decrease in those prices.
- The indices of cost of production and minimum support prices of major cereals was observed to be more than 100 with few exceptions at current and constant prices during the study period.
- The parity indices between FHP of cereals and input prices were not favorable because market prices of jowar and wheat were not sufficient to cover the increased prices of inputs. The parity indices of gross income to per quintal cost of production of jowar and wheat affected the profitability adversely.
- Compound Growth Rates (CGR) of input prices were more than double than the prices of output at MSP and FHP, except at MSP for wheat.
- The price-cost ratio of cereals were less than unity, indicating that output prices were not covering the costs.

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