



Chapter-VI

Economic Impact of ATMA in the Study Area



Farmer-Scientist interaction in progress



State level exhibition

Chapter - VI

ECONOMIC IMPACT OF ATMA IN THE STUDY AREA

The various extension activities under ATMA project have already been discussed in the previous chapter and these activities are expected to result in economic impact on the farmers in the study area. In this chapter, an attempt is made to assess the economic impact in terms of additional area brought under cultivation, changes in cropping pattern, increase in yield and cropping intensity as well as of diversification by farmers in allied activities like dairy, horticulture, animal husbandry, fisheries etc. for augmenting their income. The findings on the basis of information from sample farmers are presented and discussed in logical sequence for convenience of inferences.

DATA BASE

6.1 The impact assessment is also based upon the primary data collected from 7875 sample farmers whose main characteristics have been discussed in the previous chapter. The profile of sample beneficiaries from nine districts of Uttar Pradesh and two districts of Haryana revealed that the beneficiaries were all inclusive i.e., small, marginal farmers and those having more than 2 ha. Area as well as from all social categories almost in proportion to their population. Besides, secondary data on agricultural and other aspects was collected from publications as well as from office records to cross check the micro impact revealed by the samples with macro impact in the area as a whole. The universe of the beneficiaries under ATMA as per social and economic categories is given in Table 6.1. The above table shows that all categories of farmers have benefited under ATMA programme in the selected districts. Farm size-wise, in total beneficiaries, 63% are marginal farmers, 18% are small farmers and 19% are farmers above 2 ha. In Uttar Pradesh, small farmers are more at 67% and farmers above 2 ha. are only 15 per cent. In the overall sample, SC farmers are about 22% and women are 17% where these percentages are 24% and 19% in Uttar Pradesh.

Table 6.1: Economic & Social Category wise Distribution of ATMA Beneficiaries (2005-08)

Category of farmers	Jala un	Luck now	Saharan pur	Bagh pat	Bareilly	Aligarh	Allahabad	Maharajganj	Barabanki	Sub-Total UP	Sirsa	Sonepat	Sub Total HR	Grand Total
Marginal	9836	18054	6121	15878	16040	27076	2120	9160	6274	110559	22694	22915	45609	156168
Small	3824	3516	1552	6023	3735	8166	1250	1214	1019	30299	9657	3274	12931	43230
Large	4553	1876	948	5475	2197	7736	630	662	549	24626	15934	6547	22481	47107
Total	18213	23446	9286	27376	21972	42978	10901	10710	7842	162149	48285	32736	81021	246505
SC/ST	5999	3350	2144	6243	5043	10819	961	2484	2723	39766	9657	3631	13288	53054
Women	2833	3924	1125	4559	550	10998	1139	2749	2746	30623	4829	6691	11520	42143

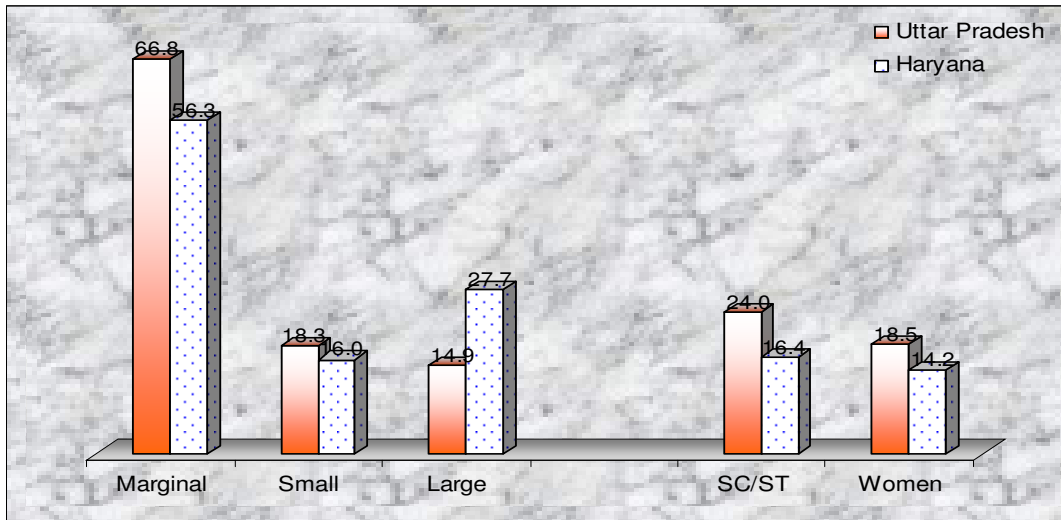
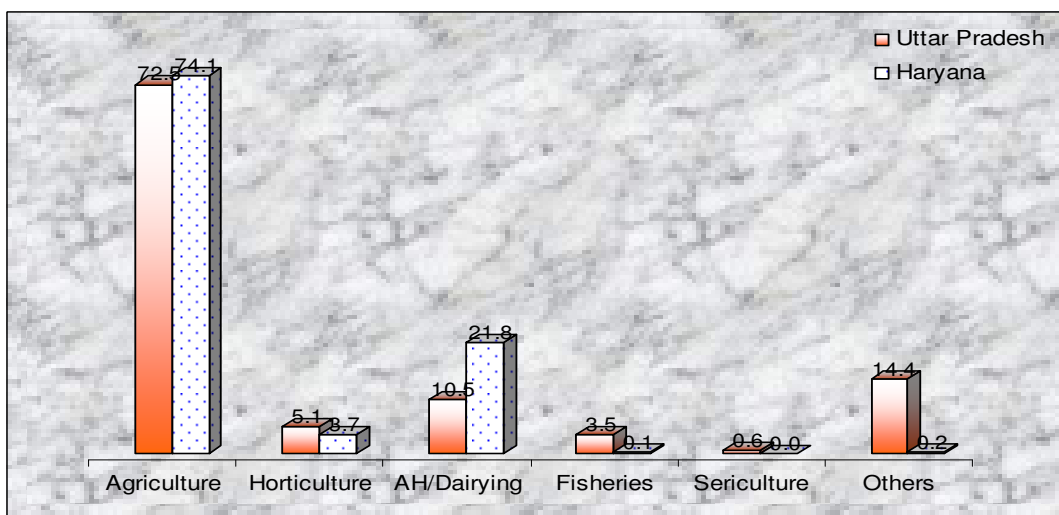


Table 6.2: Sector wise Total Beneficiaries under ATMA (2005-08)

Category of Farmers	Jalaun	Luck now	Saha ranpur	Bagh pat	Bare illy	Aligarh	Allah a bad	Maha rajganj	Bara banki	Sub-Total UP	Sirsa	Sonepat	Sub-Total HR	Grand Total
Agriculture	9830	10033	8621	21291	16166	36838	3100	6695	4919	117493	47759	15068	60037	181637
% to District	53.97	42.79	92.84	77.77	73.58	85.71	28.44	62.51	62.73	72.46	98.91	46.03	74.1	73.67
Horticulture	2065	610	92	1092	1520	846	702	829	524	8280	116	2504	3014	10059
% to District	11.34	2.60	0.99	3.99	6.92	1.97	6.44	7.74	6.68	5.11	0.24	7.65	3.72	4.08
AH/Dairying	2703	1165	405	918	2260	1631	4824	1631	1400	16937	116	15150	17695	46451
% to District	14.84	4.97	4.36	3.35	10.29	3.79	44.25	15.23	17.85	10.45	0.24	46.28	21.84	18.84
Fisheries	215	1315	75	118	1598	400	600	1035	336	5692	111	13	113	2540
% to District	1.18	5.61	0.81	0.43	7.27	0.93	5.50	9.66	4.28	3.51	0.23	0.04	0.14	1.03
Sericulture	0	0	0	0	428	0	0	520	0	948	0	0	0	370
% to District	0.00	0.00	0.00	0.00	1.95	0.00	0.00	4.86	0.00	0.58	0	0	0	0.15
Others	3400	10323	93	3957	0	3263	1675	0	663	23374	188	0	170	97.14
% to District	18.67	44.03	1.00	14.45	0.00	7.59	15.37	0.00	8.45	14.42	0.39	0	0.21	3.94
TOTAL	18213	23446	9286	27376	21972	42978	10901	10710	7842	162149	48285	32736	81021	246505



SECTOR -WISE COVERAGE

6.2 The sector-wise coverage of total beneficiaries in the sample districts during the last 3 years was obtained from the line departments and is presented in Table 6.2 . The overall beneficiaries in agriculture are around 72 percent & 74 percent in the two states. Across the districts, the coverage under agriculture is low in Allahabad (28%), Lucknow (43%) and Sonapat (46%) while it is higher in Sirsa (98%), Saharanpur (93%) and Aligarh (86%). As regards horticulture including vegetables, coverage is relatively higher at 5% in U.P as compared to 4% in Haryana which may be due to more suitable climatic conditions for fruit crops in UP. Among the districts, while Sirsa (0.2%) has the lowest coverage under horticulture, Jalaun (11%) has the highest coverage followed by Sonapat (8%), Bareilly (6.9%), Barabanki (6.7%) and Allahabad (6.4%). It seems that nearness to big cities may have given an edge to vegetable growing. Coverage of dairy farmers is much higher in Haryana (22%) as compared to UP (10%). Across the districts, more dairy farmers have been benefited in Sonapat (46%), Allahabad (44%) and Barabanki (18%) which are near the big consumption centres. Coverage under fish farming is much higher in UP (3.5%) as compared to Haryana (<5%). In sericulture, while UP (0.6%) has a small coverage, Haryana has none. The coverage under beneficiaries of “others” category is about 14% in UP which is quite high compared to just 0.21% in Haryana. The coverage is the maximum at 44% in Lucknow followed by about 19% in Jalaun.

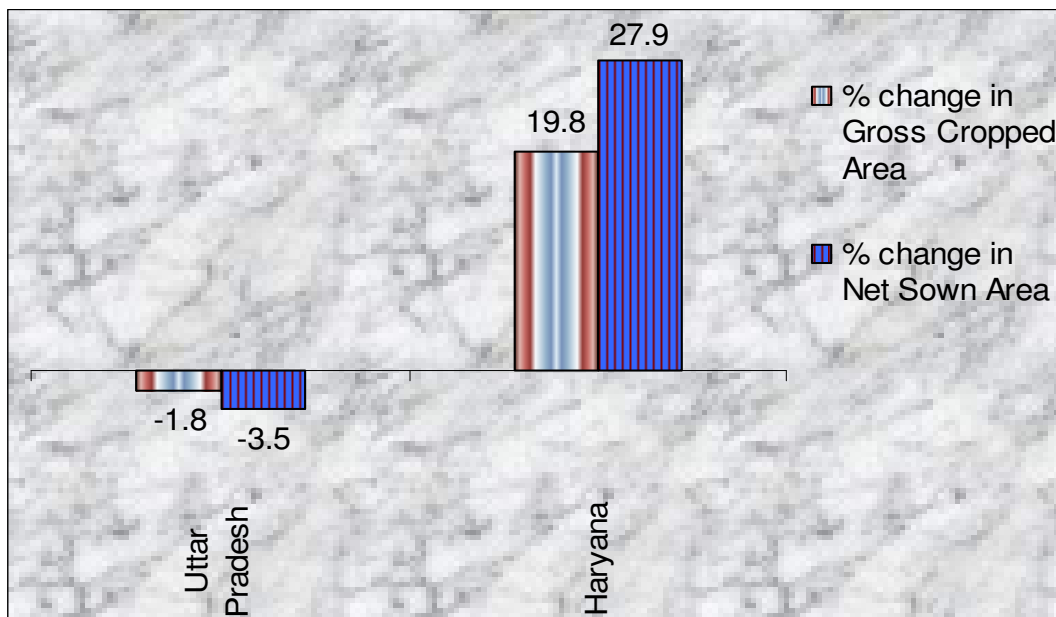
ADDITIONAL AREA BROUGHT UNDER CULTIVATION

6.3 With the availability of better extension facility, a farmer may bring more cultivable area under cultivation or increase cropping intensity. The increase is examined in terms of increase in net sown area (NSA) and gross cropped area (GCA). The GCA and NSA before (2004-05) and after (2007-08) ATMA are given in Table 6.3.

Table 6.3 shows that the net sown area (NSA) has increased by 97932 ha. i.e. 3.75% in all the sample districts but the increase was in Haryana only by 1,66,000 ha while it decreased by 78068 ha in UP. It seems, this change cannot be attributed to ATMA and may be due to climatic factors in Jalaun, Allahabad and Barabanki districts during 2007-08. The GCA has increased by 223200 ha in Haryana whereas it decreased in UP due to reasons as above. It may not be appropriate to draw any conclusion without the average of at least 3 years which may iron out climatic changes.

Table 6.3 : Changes in Gross Cropped Area and Net Sown Area

S. No.	Districts	Gross Cropped Area (ha)		Net Sown Area (ha)	
		Before ATMA	After ATMA	Before ATMA	After ATMA
Uttar Pradesh					
1	Jalaun	416275	428503	350296	317648
2	Lucknow	218220	215845	138148	139660
3	Saharanpur	423736	410398	274202	275081
4	Baghpat	175565	172826	110238	109818
5	Bareilly	561527	533287	328235	327183
6	Aligarh	508418	521518	301904	302299
7	Maharajganj	370292	358048	201849	202282
8	Allahabad	486160	499018	325836	314356
9	Barabanki	529161	484855	290140	254453
Sub -Total		3689354	3624298	2320848	2242780
Haryana					
11	Sirsa	635000	817200	291000	421000
12	Sonepat	271000	312000	137000	173000
Sub -Total		906000	1129200	428000	594000
Grand Total		4595354	4753498	2748848	2836780



CHANGES IN CROPPING PATTERN

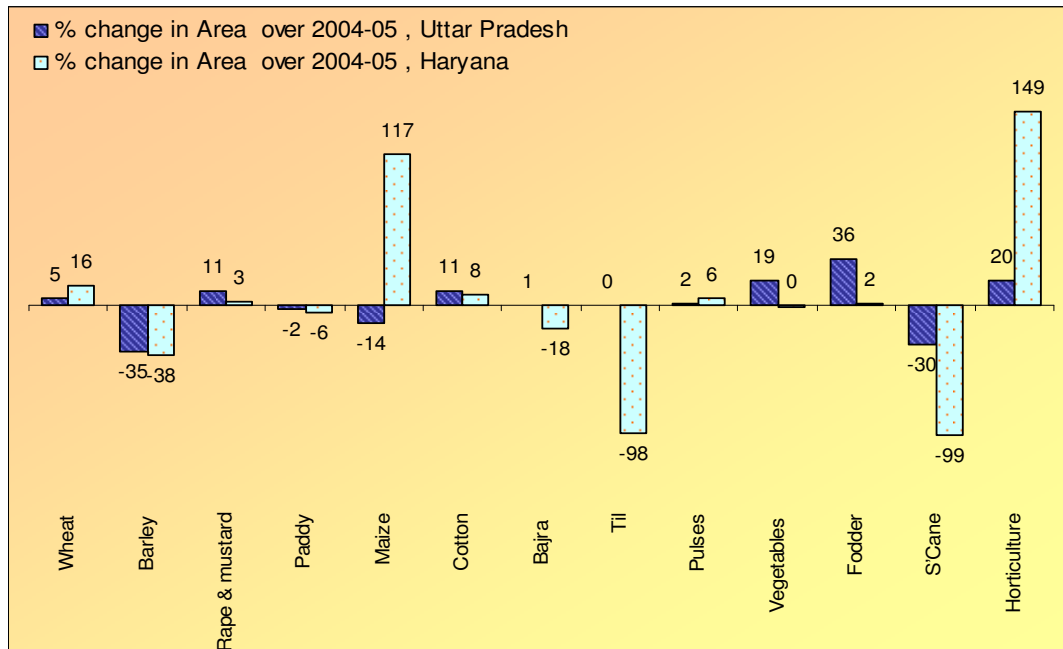
- 6.4 The extension facility may result in supply of better seeds, planting materials and advice on use of inputs. But these may not be equal for all crops and hence the farmers try to maximize their income by shifting acreage to crops where they are likely to get higher yield or input support. The cropping pattern was obtained from the sample farmers in the years 2007-08 and 2004-05 to represent after and before ATMA position. The district -wise average area per farmer under all the crops

including horticulture crops along with their percentage share in the gross cropped area has been worked out and is given in Annexure 6.1. The main trend and districts with prominent changes are given in Table 6.4.

Table 6.4 : Changes in Cropping Pattern after ATMA

Crop	% share in GCA in 2007-08		% change in Area over 2004-05			Districts with prominent Changes
	UP	HR	UP + HR	UP	HR	
Wheat	33.06	41.01	+5.95	+5.18	+15.61	Sonepat(-), Baghpat (+)
Barley	0.50	0.39	-35.69	-34.56	-37.53	(-) Sonepat & Maharajganj
Rapeseed & mustard	4.54	6.20	+6.88	+11.41	+2.77	(+) Baghpat & Sonepat
Paddy	21.78	21.72	-3.56	-1.94	-5.65	(-) Sirsa & Saharanpur
Maize	2.16	0.71	+1.98	-13.59	+116.89	Sonepat(+) & (-) M'ganj, Bareilly
Cotton	0.03	17.65	+8.35	+10.78	+8.35	(+) Sirsa & Allahabad
Bajra	5.59	3.37	-5.78	+0.75	-17.63	(-) Sonepat
Til	2.16	0.00	-2.29	0.08	-97.5	(-) Sonepat & Allahabad
Pulses	6.43	2.84	2.65	1.63	5.88	(+) Sonepat, Baghpat & B'Banki
Vegetables	4.37	0.98	15.74	18.98	-0.34	Mahar'ganj, Aligarh & Sah'pur
Fodder	7.49	3.62	25.47	36.37	2.10	Sah'pur, Baghpat & Sonepat
S'Cane	8.07	0.02	-41.63	-30.24	-99.39	Sonepat, Baghpat & Sah'pur
Horticulture	3.82	1.49	35.52	19.65	149.01	Sah'pur, Baghpat & Sonepat
Total(GCA)	100.00 (6.49)	100.00 (16.93)	-3.51	1.05	-9.03	Saharanpur, Baghpat

Refer to annexure 6.1 for crop-wise area and share in all sample districts. UP= Uttar Pradesh & HR=Haryana



Wheat acreage has the maximum share in the GCA at about 33% and 41% in UP and Haryana, respectively. During the period 2004-08, the increase in wheat area was about 5% in UP and 16% in Haryana especially in the districts of Sonapat and Baghpat. The other important Rabi crop is rapeseed and mustard (R & M) with a share of about 5% and 6% in above states. It has recorded an increase of 6.9% and 11.4% respectively especially in the same districts of Sonapat and Baghpat. These two districts have reduced their Rabi area under barley by about 35% each which may have gone to wheat and R & M.

In Kharif crops, area has been reduced under paddy, bajra and til. The bajra area has mainly been reduced in Sonapat; til area in Sonapat and Allahabad and paddy area in Sirsa and Saharanpur. The crops which have recorded increase in this season are cotton in Sirsa and Allahabad and pulses especially arhar in Baghpat, Barabanki and Sonapat. Cotton recorded overall increase of about 8.5% almost in both the states. Vegetable area in all the seasons has increased by about 16%, mainly in districts of Saharanpur, Maharajganj and Aligarh in Uttar Pradesh. Fodder crops have also increased their area in the districts Saharanpur, Baghpat & Sonapat which may have given boost to dairy in these districts. Among the perennial crops, sugarcane area has been reduced by about 42% with 99% in Haryana and 34 % UP. The important looser districts in sugarcane area are Baghpat, Sonapat and Saharanpur. A major part of their acreage may have gone to fodder crops and horticulture including floriculture & vegetables in these districts.

The overall GCA of sample farmers has increased in UP by 1.05% and decreased in Haryana by 9% which is against the trend from the published data of the district in Table 6.3. It means that the change in cropping pattern is entirely due to intra shifting of acreage among the crops. As discussed above, the acreage has shifted from barley, paddy, bajra, til and sugarcane crops to wheat, R & M, cotton, pulses, vegetables, fodder and horticulture.

Change in fodder area has been the maximum in Saharanpur (150%) followed by 22% in Baghpat, 15% in Allahabad and 38% in UP as a whole. The change was just 2% in Haryana. The economics of fodder area are linked with dairy and it will be examined later under change in dairy activity.

The districts which have recorded prominent changes in cropping pattern are Sonapat, Baghpat and Saharanpur which are in the vicinity of major consumption centers like Delhi and Dehradun. Therefore, the shift may be partly due to increase in yield of area gaining crops and partly due to other reasons like better prices due to nearness to main markets. The first reason may be largely due to ATMA which is being analyzed under changes in yield.

CHANGES IN CROPPING INTENSITY

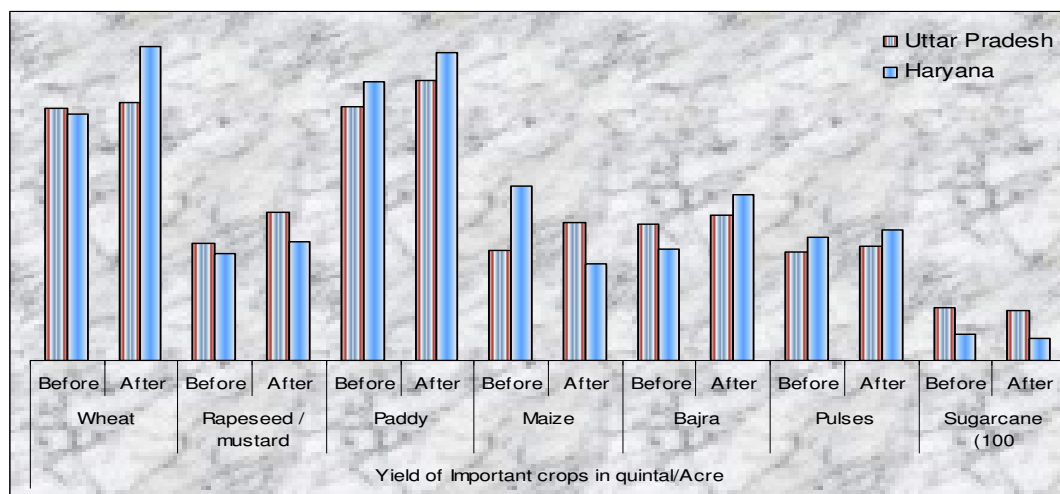
6.5 The cropping intensity, as can be seen from Annexure 6.1, increased by 1% in Uttar Pradesh with the maximum increase of 16% in Saharanpur and the maximum decrease of 19% in Maharajganj. It was more due to rainfall situation than any permanent feature. In Haryana, as against the published data for the district as a whole, the GCA of the sample farmers has decreased by 9% mainly due to shifting of area to other than agricultural use in Sonapat district being in the vicinity of Delhi.

CHANGES IN YIELD

6.6 The area and production for each crop was obtained from the farmers and yield was worked out from aggregated area and production of sample farmers in the district concerned. The before and after ATMA yields that is for the year 2004-05 and 2007-08 is presented in Table 6.5.

Table 6.5: Changes in Yield of Important Crops after ATMA

State/ District	Yield of Important crops in quintal/acre													
	Wheat		Rapeseed / mustard		Paddy		Maize		Bajra		Pulses		Sugarcane	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Uttar Pradesh														
Jalaun	13.46	13.73	5.88	5.91	0.00	0.00	0.00	0.00	7.29	7.50	5.46	5.67	-	-
Lucknow	15.04	15.58	5.80	6.13	14.99	15.33	10.15	11.45	6.62	6.72	6.74	5.86	187.14	191.52
Saharanpur	13.81	15.21	6.28	5.95	12.22	13.47	11.94	14.75	3.38	5.43	11.02	10.97	184.44	199.25
Baghpat	13.37	19.02	7.93	7.26	12.64	15.76	7.82	7.57	6.24	5.86	6.44	6.89	196.31	214.33
Bareilly	16.34	17.97	7.53	9.04	17.50	19.57	2.12	17.29	0.00	0.00	6.92	8.10	336.14	353.87
Aligarh	14.48	14.16	7.21	5.69	12.20	13.51	7.03	7.61	7.28	7.89	5.56	6.26	0.00	0.00
Maharajganj	11.12	14.13	5.00	5.30	12.35	16.88	0.81	5.96	8.04	8.43	5.15	5.55	257.64	277.57
Allahabad	13.61	15.65	8.02	6.79	13.52	14.44	0.68	2.46	7.98	8.80	5.65	6.68	280.00	300.00
Barabanki	12.10	13.14	4.27	5.55	13.83	14.02	3.68	2.88	0.00	0.00	5.45	5.73	189.72	195.99
Total	13.62	13.93	6.35	8.03	13.72	15.12	5.98	7.45	7.37	7.86	5.88	6.17	287.78	271.16
Haryana														
Sirsa	15.06	16.53	5.66	6.24	15.53	17.68	7.92	8.71	6.62	8.85	5.58	5.78	137.33	116.00
Sonapat	11.31	17.58	6.36	7.32	14.81	16.13	12.11	3.60	5.41	9.20	7.71	8.25	155.00	144.44
Total	13.31	16.94	5.79	6.43	15.06	16.64	9.47	5.25	6.04	8.99	6.68	7.07	143.00	119.27
G Total	13.45	15.37	6.06	7.22	14.30	15.77	6.29	7.01	6.90	8.21	6.07	6.39	256.96	270.90



The increase in yield may be ascribed to many factors like timely sowing, use of better seeds, adequate and timely doses of fertilizers, pesticides, micronutrients, etc. Therefore, an increase in yield may be attributed as an ATMA effect. The impact on yield of important individual crops is as under.

The overall wheat yield has increased by about 14% due to ATMA effect and it may be the reason for increasing area under wheat. At state level, increase is relatively higher in Haryana. At district level, the increase has been much higher than state average in Baghpat and Sonapat districts which have recorded the highest increase in area under wheat too.

The rapeseed and mustard has recorded increase of over 19% for aggregated data of both the states. At state level, there is almost equal increase but at district level, Bareilly and Barabanki have recorded higher increase and that may be the reason for higher increase in acreage under this crop in these districts. While all other districts have marginal to moderate increase in yield, Saharanpur, Baghpat, Aligarh and Allahabad have marginal lower yields possibly due to relatively higher increase in yield of competing crops of wheat and sugarcane.

Paddy has also recorded increase in yield by 10% over 2005-06 which is almost equal in both states as well as all the sample districts but none of the districts have shown prominent increase in their area. Saharanpur and Sirsa are the only districts with more than 10% yield increase though their paddy area has shown decrease due to relatively higher increase in yield of competing crops of cotton and fodder.

Maize and Bajra recorded increase of about 11% and 18% but they have just retained their area due to low absolute yields of competing crops cotton and paddy. Maize has recorded increase in Sonapat due to higher prices.

Pulses, especially Arhar, have increased its yield by 5% almost equal in both the states but at district level, the increase is relatively higher in Bareilly, Baghpat and Sonapat and the area under pulses has also slightly increased.

Sugarcane has recorded decrease of about 6% in yield especially in Haryana. At district level, yield had decreased in both Sonapat and Sirsa districts and their area have also been reduced. There is some increase in yield of sugarcane in UP especially in Baghpat and Saharanpur but their area have also decreased due to higher increase in competing crops of horticulture and fodder.

The above discussion on changes in yield and corresponding changes in area allows us to conclude that the ATMA has played a significant role through yield in changing the cropping pattern. Besides, the awareness about market price may also have induced the changes in cropping pattern, the district wise status of which is presented in Table 6.7 to follow.

IMPACT ON HORTICULTURE

- 6.7 The acreage under horticulture crops including floriculture has recorded the highest increase of 35.5% as per the feedback of sample farmers. Among the states, the increase was about 20% in UP and 149% in Haryana. UP is a traditional horticulture state especially for mango, aonla and guava whereas Haryana may have increased more area under floriculture and citrus fruits.

Table 6.6: Extent of increase in Horticulture Area among Sample farmers and Emerging crops (in ha)

S. No.	Districts	Horticulture Area(ha)			Fruits with prominent change
		Before	After	% increase	
Uttar Pradesh					
1	Jalaun	52.4	55.4	5.7	Guava
2	Lucknow	137.2	96.2	-29.9	Floriculture(+)
3	Saharanpur	535.5	864.0	61.3	Banana, floriculture(+), citrus
4	Baghpat	4.1	12.1	197.5	Floriculture. mango
5	Bareilly	7.5	7.5	0.0	--
6	Aligarh	331.9	317.6	-4.3	--
7	Maharajganj	29.1	29.0	-0.3	Mango
8	Allahabad	134.0	103.0	-23.1	Citrus
9	Barabanki	35.1	33.2	-5.4	-
	Sub-Total	1268.7	1518.0	19.6	Banana, and Floriculture, citrus
Haryana					
11	Sirsa	88.0	85.5	-2.8	Citrus fruits
12	Sonepat	89.5	356.5	298.3	Banana, Floriculture, Guava
	Sub -Total	177.5	442.0	149.0	Banana, Guava,, Floriculture
	Grand Total	1446.2	1960.0	35.5	Banana, guava, citrus, Floriculture

Refer to Annexure 6.2 for details

- 6.8 The area under all fruit crops has increased by about 36% of the sample farmers. The main fruit crops which recorded increase in area are banana, guava and floriculture. In Haryana; banana & floriculture have come up from negligible base in Sonepat district and citrus fruits in Sirsa. In Uttar Pradesh, banana, citrus and floriculture have increased their area more than the traditional mango crop. Among the districts of UP, guava has increased in Jalaun and citrus in Allahabad. Sample farmers of Bareilly, Barabanki and Aligarh do not show any prominent change. Lucknow farmers show a little increase in floriculture while Saharanpur has registered a sizable increase in area under banana, citrus and floriculture. It is difficult to attribute the whole change to extension as the changes appear more in the districts neighboring big cities e.g. Sonepat and Baghpat are near Delhi, Saharanpur near Dehradun and Chandigarh.

The other interesting observation is the increasing size of gardens. The garden size of all sample farmers increased from 2.75 acre in 2005-06 to 3.66 acres in 2007-08.

The increase was much higher from 4.67 acres to 10.52 acres in Haryana as compared to increase from 2.60 acres to 3.08 acres in UP during the same period. At district level, maximum increase was revealed in Sonapat and Saharanpur where a few big banana gardens have come up. On discreet inquiry, it was found that some non-farmers were purchasing land to establish gardens.

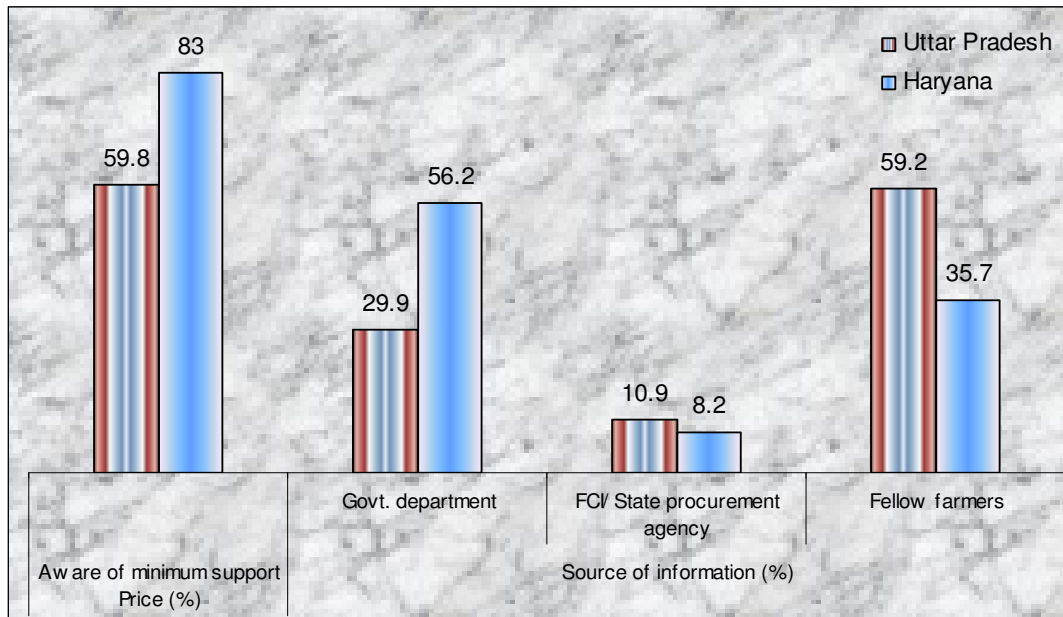
IMPACT ON PRICE AWARENESS

6.9 The availability of marketing advice and channels of marketing were discussed in Chapter - V in Tables 5.48 and 5.49. The availability of marketing advice in post ATMA situations was reported by more farmers in Baghpat (28%), Bareilly (45%) and Sonapat (49%) as compared to 15% in all districts. Even the support in value addition was reported by more farmers in Baghpat (17%) and Sonapat (39%) as against 8% in all districts. On specific questions like marketing channels adopted and adequacy of price obtained, the responses as given in Table 5.49 revealed that Baghpat and Sonapat were having relatively better access upto 42% and 55% respectively to regulated markets as compared to overall 32%. The district-wise status on awareness about market price is presented in Table 6.7.

Table 6.7 : Awareness about Minimum Support Price

District	Aware of minimum support price (%)	Source of information (%)			
		Govt. deptt	FCI/ State procurement agency	Fellow farmers	Total
Uttar Pradesh					
Jalaun	46.3	44.4	18.4	37.1	315
Lucknow	39.7	17.4	8.1	74.4	270
Saharanpur	85.7	3.4	20.4	76.2	583
Baghpat	81.2	36.8	9.1	54.2	552
Bareilly	49.9	79.6	6.8	13.6	339
Aligarh	44.4	21.9	8.3	69.9	302
Maharajganj	71.5	17.3	4.7	78.0	486
Allahabad	75.9	45.5	13.4	41.1	516
Barabanki	43.8	10.3	3.7	86.0	300
Total	59.8	29.9	10.9	59.2	3,663
Haryana					
Sirsa	81.5	48.2	5.5	46.3	713
Sonapat	84.6	63.8	10.8	25.4	740
Total	83.0	56.2	8.2	35.7	1,453
G. Total	65.0	37.4	10.1	52.5	5,116

Note: Total may not add up to 100 due to multiple responses from some farmers



Of the total sample, overall 65% were aware about the minimum support/state advised prices (MSP) of farm produce. At state level, the awareness was 83% in Haryana and 60% in Uttar Pradesh. Among the districts, the highest awareness was in Saharanpur/Sonepat (85%) followed by 81% in Sirsa and Baghpat and the lowest awareness was in Lucknow, Aligarh and Barabanki which have not shown significant changes in their cropping pattern too.

The role of ATMA in creating price awareness through government departments were reported by only 37% with the maximum in Bareilly, Sonapat and Sirsa. A majority of farmers (53%) came to know about MSP through the fellow farmers and the remaining 10% from procurement agencies. Interaction among fellow farmers appears to be the natural way of dissemination of such information.

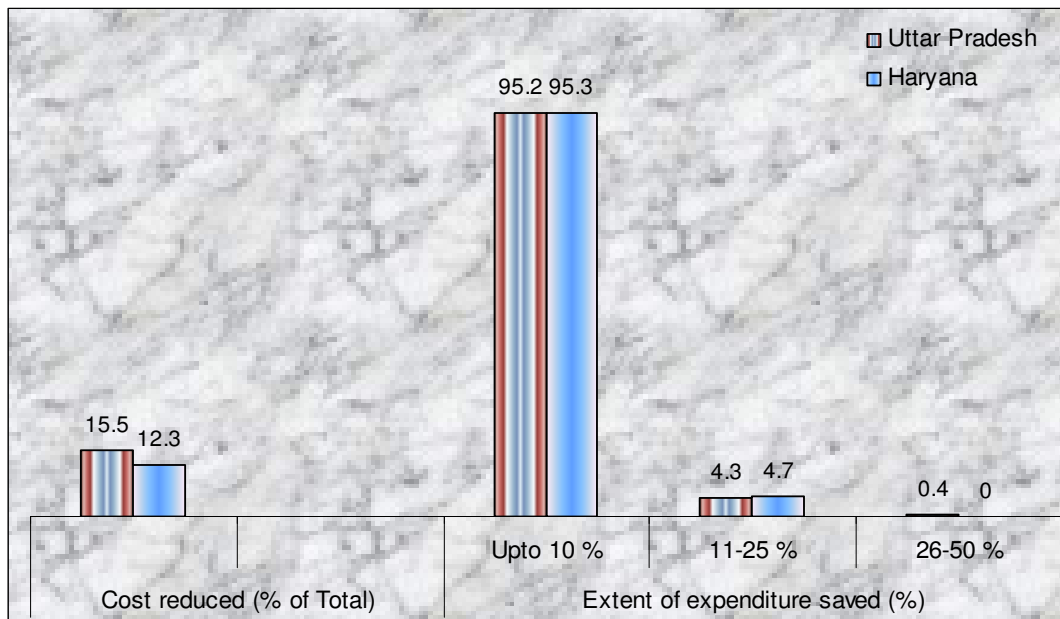
REDUCTION IN COST

6.10 Reduction in cost of production (COP) is an important factor that indirectly improves the income per unit of area. The feed back of those who achieved reduction in COP and the extent of savings realized is presented district-wise in Table 6.8.

Of the total sampled farmers, about 15% have reported saving in their COP (column 1) which was about 16% in UP as compared to 12% in Haryana. Among the districts, maximum farmers reported saving in Aligarh 31% followed by about 23% in Baghpat & Bareilly and 20% Sonapat & Allahabad; least being in Barabanki (1.5%). The extent of saving in the total COP was upto 10% for about 95% of farmers and 10 to 25% for about 5 per cent. This may be because of technical advice in use of various inputs and technologies.

Table 6.8 : Reduction in cost of production and extent of savings in expenditure due to ATMA

District	Cost reduced	Extent of expenditure saved (%)			Total response
	% of Total	Upto 10 %	11-25 %	26-50 %	
Uttar Pradesh					
Jalaun	10.9	100.0	0.0	0.0	74
Lucknow	16.8	97.4	2.6	0.0	114
Saharanpur	06.7	71.1	28.9	0.0	45
Baghpat	22.4	87.4	10.0	2.7	150
Bareilly	23.8	100.0	0.0	0.0	161
Aligarh	31.4	96.7	3.3	0.0	211
Maharajganj	06.7	97.8	2.2	0.0	46
Allahabad	19.6	99.2	0.8	0.0	133
Barabanki	01.5	90.9	9.1	0.0	11
Total	15.5	95.2	4.3	0.4	945
Haryana					
Sirsa	04.3	97.4	2.6	0	38
Sonepat	20.3	94.9	5.1	0	176
Total	12.3	95.3	4.7	0	214
G. Total	14.7	95.3	4.4	0.3	1159

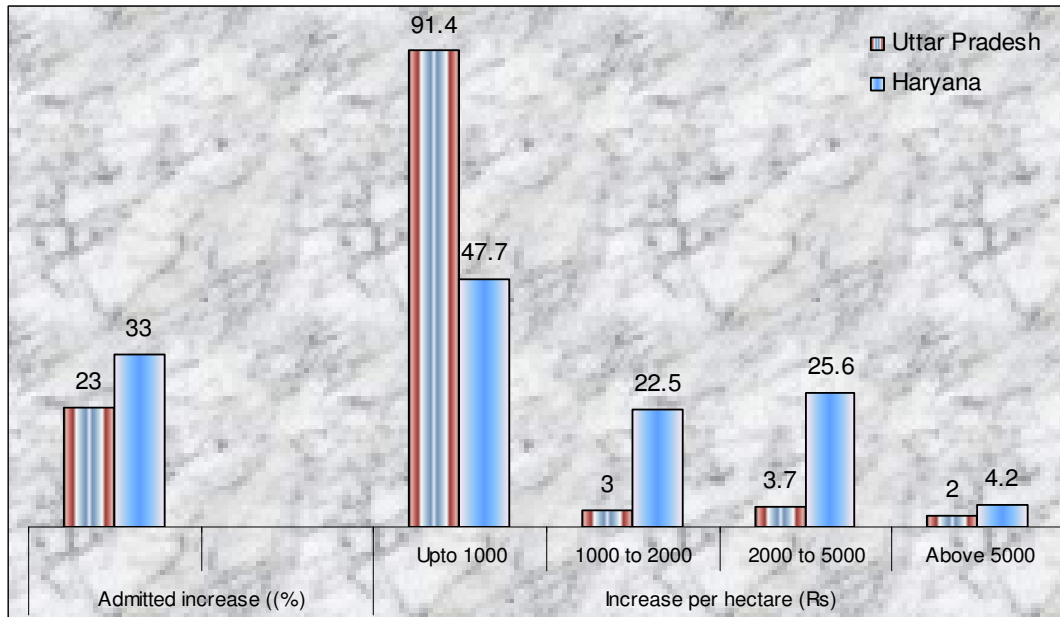


PRODUCTION INCREASE ATTRIBUTED BY FARMERS TO ATMA

6.11 A question was asked from the respondent farmers as to their perception about increase in income which could be attributed to ATMA. The responses received from them are shown in Table 6.9.

Table 6.9 : Increase in Income and the Extent of Increase due to ATMA

State / District	Admitted increase (%)	Increase per hectare (Rs.)				Total response
		Upto 1000	1000 to 2000	2000 to 5000	Above 5000	
Uttar Pradesh						
Jalaun	12.5	100.0	0.0	0.0	0.0	85
Lucknow	25.0	86.5	11.2	1.8	0.6	170
Saharanpur	14.3	97.9	0.0	2.1	0.0	97
Baghpat	39.3	67.4	5.2	17.2	10.1	267
Bareilly	53.5	100.0	0.0	0.0	0.0	364
Aligarh	24.9	100.0	0.0	0.0	0.0	169
Maharajganj	9.7	97.0	1.5	1.5	0.0	66
Allahabad	26.5	100.0	0.0	0.0	0.0	180
Barabanki	01.9	38.5	61.5	0.0	0.0	13
Total	23.0	91.4	3.0	3.7	2.0	1411
Haryana						
Sirsa	11.2	96.9	2.0	1.0	0.0	98
Sonepat	54.7	37.6	26.7	30.7	5.0	479
Total	33.0	47.7	22.5	25.6	4.2	577
G. Total	25.2	78.7	8.7	10.1	2.6	1988



The table shows that 23% of the sample farmers in UP and about 25% in Haryana admitted some increase in agricultural production due to ATMA, maximum being about 54% in Bareilly & Sonepat. The extent of increase was also worked out in terms of Rs. per unit area. Of the total respondents in both the states, the per acre increase was assessed upto Rs.1000 by about 79%, between Rs. 1000 to Rs. 2000 by 9%, Rs. 2000 to Rs. 5000 by 10% and only 2% have reported increase of above Rs.5000. In Haryana, the farmers who have reported increase of Rs.2000 & above

are about 30% as compared to 6% in UP. At district level, the increase in the maximum range was reported by 36% farmers in Sonapat and 27% in Baghpat. These two districts have also shown relatively much higher changes in their cropping pattern. This increase in income may be the result of changes in cropping pattern, reduction in cost and technical; advice on better use of inputs.

DIVERSIFICATION TO ALLIED ACTIVITIES

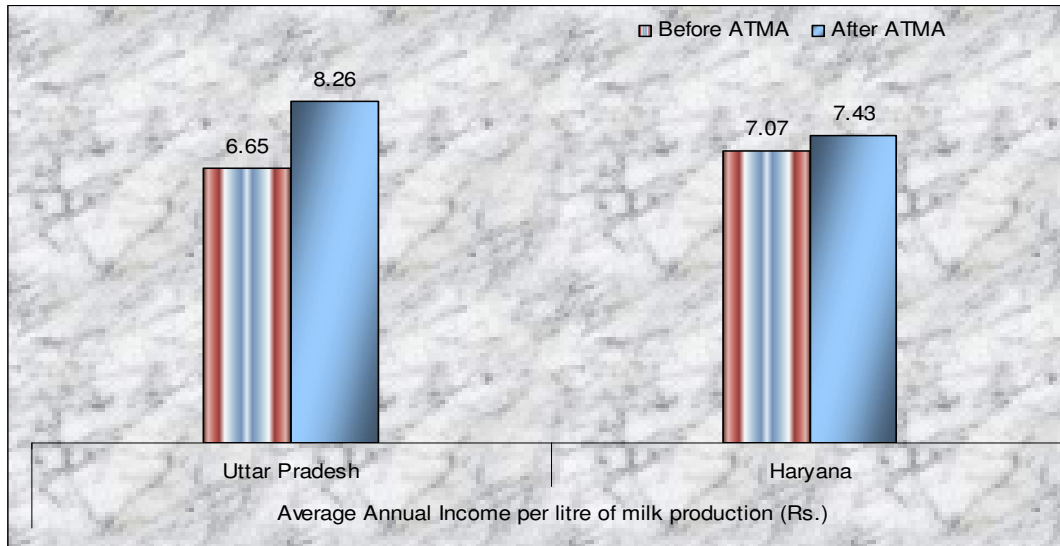
6.12 Extension services are also aimed at diverting farmers to allied activities in order to augment their income. The allied activities considered are dairy, poultry, sheep/goat/pig rearing, bee-keeping and fisheries. The status of these activities before (2005-06) and after (2007-08) ATMA program in terms of number/units, production and income for all the selected districts is given in Annexure 6.3 and the activity-wise changes are discussed in the following paragraphs.

IMPACT ON DAIRY FARMING

6.13 The information as worked out from the data contained in Annexure 6.3 is presented in Table 6.10.

Table 6.10 : No. of Dairy Animals, Average Annual Milk Production & Income before & after ATMA

State / District	Before ATMA (2005-06)			After ATMA (2005-06)		
	No. of milch animals	Annual production (ltr)/animal	Annual income (Rs)	No. of milch animals	Annual production (ltr)/animal	Annual income (Rs)
Uttar Pradesh						
Jalaun	1181	549	3467	1247	569	3888
Lucknow	1087	577	4172	1092	626	4708
Saharanpur	1035	769	3923	1188	597	5919
Baghpat	912	640	4788	1202	698	6974
Bareilly	875	598	3689	1027	617	4678
Aligarh	1286	581	4657	1295	601	5212
Maharajganj	667	515	3304	750	593	4838
Allahabad	962	588	3574	1079	595	4137
Barabanki	553	585	4273	652	603	4809
U P	8558	603	4005	9532	612	5055
Sirsa	1386	657	5156	1485	647	5524
Sonapat	1408	523	3194	1645	620	3953
Haryana	2794	589	4167	3130	633	4698
G. Total	11352	599	4045	12662	617	4967



The columns (2) and (3) of Table 6.10 show that the milch animals of sample farmers have increased from 11352 in 2005-06 to 12662 in 2007-08 i.e. by 12.5 %. At state level, the increase was about 12% in Haryana districts as compared to 11% in UP districts. At district level, maximum increase is revealed in Baghpat at 32%, about 18% in Bareilly, Barabanki and Sonapat and 15% in Saharanpur. Baghpat and Sonapat are supplying fresh milk to Delhi while Barabanki and Bareilly may be feeding Lucknow. In recent years, the development of private supply chain coupled with extension support from ATMA may have given boost to dairy in the adjoining areas. However, the increase in annual milk production per animal is just 3 % which indicates the extension support is yet to make an impact. In Haryana, the milk production per animal was slightly higher at 6 %. At district level the maximum increase is in Sonapat at 18% followed by Maharajganj (15%) and 8% in Baghpat & Lucknow.

The annual average net income as per the broad feed back of sample farmers has increased from Rs. 4045 to Rs 4967 i.e. about 23%. The income increase in UP is more than double of Haryana which is mainly due to realization of much better prices in a span of two years. The milk collection system may have improved due to competition among private suppliers. At district level, relatively higher increase in dairy income was in the districts of Saharanpur, Baghpat, Bareilly and Maharajganj. These are the districts where number of milch animal has also increased. It appears that the farmers have behaved rationally in adopting the higher income activity.

IMPACT ON MEAT PRODUCING ACTIVITIES

- 6.14 The status of allied activities with respect poultry farming, sheep/goat/pig rearing in terms of units is presented in Table 6.11.

Table 6.11 : Status of poultry Farming and, Sheep/Goat/pig Rearing before and after ATMA

State/ District	No. of poultry birds		No. of sheep		No. of goats		No. of pigs	
	Before	After	Before	After	Before	After	Before	After
Uttar Pradesh								
Jalaun	0	0	0	0	870 (3)	964(3)	40(1)	0
Lucknow	35(1)	35(1)	0	0	173(4)	190(4)	0	0
Saharanpur	100000(1)	211700(36)	0	0	24(5)	37(5)	1500(1)	0
Baghpat	0	0	0	0	28(9)	10318	0	0
Bareilly	3(1)	3(1)	0	0	5(1)	6(1)	0	6(1)
Aligarh	7200(1)	0	15(1)	15(1)	232(5)	230(5)	0	0
Maharajganj	6000(1)	20(1)	23(2)	24(3)	210(53)	339(66)	0	5
Allahabad	0	0	0	0	16(3)	10(2)	0	0
Barabanki	0	0	0	0	14(5)	20(6)	0	0
Total	113238 (5)	211758 (39)	38 (3)	39 (4)	1572 (429)	1899 (457)	1540 (2)	11 (2)
Haryana								
Sirsa	1202(3)	1800(1)	12161(5)	105(2)	87(13)	104(13)	0	0
Sonepat	0	7200(1)	0	0	0	0	0	0
Total	1202(3)	9000(2)	12161(5)	105(2)	87(13)	104(13)	0	0
Grand Total	114440 (8)	220758 (41)	12199 (8)	144 (6)	1659 (442)	2003 (470)	1540 (2)	11 (2)

Figures in parenthesis are the number of Units

Table 6.11 shows that the poultry birds reared in 2007-08 after ATMA are almost double the pre ATMA situations. Poultry units were in the districts of Saharanpur, Maharajganj and Aligarh and there is no agglomeration like Hyderabad, Barwala, Sangrur. Even a big unit of one lakh birds in Saharanpur has gone giving way to smaller units perhaps during the bird flue phase. The number of units increased from 8 to 41. The number of sheep has been reduced in the two years period from 12199 to 144. It was mainly in Sirsa which may have some grazing land in the district and adjoining Rajasthan area. Similarly, goat-rearing is no more a commercial activity as the average unit size is less than five goats which may be kept in backyard by the low income people for their own milk/meat requirement.

The analysis on the basis of data in Table 6.11 reveals that poultry farming and sheep/goat/pig rearing have not been influenced by the ATMA extension. Only animal rearing activities showing improvement are poultry farming in Saharanpur and goat rearing in Baghpat & Maharajganj districts and recent initiation of poultry farming in Sonepat. The main factor that could be attributed to the reduction over time is probably the non-availability of enough grazing land and recurring effect of diseases in poultry.

BEE KEEPING

- 6.15 Only seven farmers in 5 districts of the two states were doing bee-keeping along with agriculture / horticulture. The number of beehives, production per beehive and income has been worked out in Table 6.12.

Table 6.12 : Status of Bee keeping before and after ATMA

State/ District	Before ATMA			After ATMA		
	No. of beehives	Production of honey (qtl)	Annual income (Rs)	No. of beehives	Production of honey (qtl)	Annual Income (Rs)
Uttar Pradesh						
Lucknow	90(2)	0.39	1944	105(2)	0.71	3571
Baghpat	0	0.00	0	100(1)	0.50	2500
Aligarh	350(3)	0.50	2479	235(3)	0.30	1489
Total	440(5)	0.47	2369	440(6)	0.33	1653
Haryana						
Sonepat	200(1)	0.50	2500	250(1)	0.60	3000
Total	200(1)	0.50	2500	250(1)	0.60	3000
G total	640(6)	0.48	2410	690(7)	0.43	2141

Beehive units were found in 3 districts of UP and one district of Haryana after ATMA. There was not much change in the units and income per unit is also less if both are priced at 2007-08 prices. It signifies that ATMA extension has not made much headway in this activity though it is linked to horticultural crops.

IMPACT ON FISH FARMING

- 6.16 The information regarding fish ponds, annual production and annual income among the sample farmers is given in Table 6.13.

Table 6.13: Impact on Fish farming

State / District	Before ATMA (2005-06)			After ATMA (2007-08)		
	No. of fish ponds	Annual production (qtl)	Annual Income (Rs.)	No. of fish ponds	Annual production (qtl)	Annual Income (Rs.)
Jalaun	3	25	150000	3	25	.
Lucknow	35	3060	684000	30	3076	686000
Saharanpur	0	0	0	1	0	0
Baghpat	30	5456	909410	45	2035	1300192
Bareilly	29	2283	971000	34	519	1395230
Aligarh	2	25	80000	2	30	180000
Maharajganj	1	400	40000	10	140	840000
Allahabad	28	3394	776300	19	589	508500
Barabanki	26	7897	586892	62	14117	1337004
Total	154	22540	4197602	206	17831	6246926
Sirsa	0	0	0	18	406	550700
Sonepat	0	0	0	0	0	0
Total	0	0	0	18	406	550700
G. Total	154	22540	4197602	224	18237	7348326

The number of Fish ponds increased from 154 to 224 after start of ATMA, though production is not higher in 2007-08 as compared to 2005-06. The value of fish production has increased by almost two times which was mainly due to price effect. It indicates that ATMA has not made any significant impact especially on fish yield.

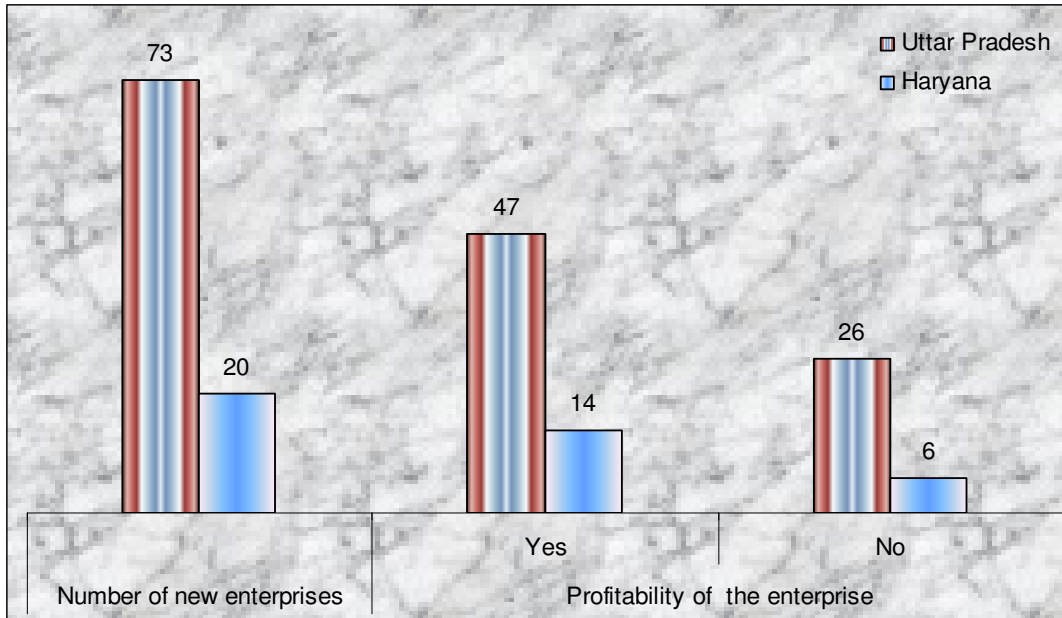
IMPACT ON SETTING UP NEW ENTERPRISES

- 6.17 The sample beneficiaries were asked about any new enterprises set up by them during ATMA implementation. Of the total sample, 93 farmers reported setting up of new enterprises in all the selected districts as shown in Table 6.14.

Table 6.14 : New Enterprises Set up due to ATMA

State/District	No of new enterprise	Total	Profitability of the enterprise	
			Yes	No
Uttar Pradesh				
Jalaun	2	680	1	1
Lucknow	1	680	1	0
Saharanpur	8	680	0	8
Baghpat	38	680	29	9
Bareilly	5	680	5	0
Aligarh	13	680	5	8
Maharajganj	1	680	1	0
Allahabad	5	680	5	0
Barabanki	0	685	0	0
Total	73	6,125	47	26
Haryana				
Sirsa	3	875	0	3
Sonepat	17	875	14	3
Total	20	1,750	14	6
G. Total	93	7,875	61	32

Sample beneficiaries reporting setting up of enterprises were maximum 38 in Baghpat followed by 17 in Sonapat and 13 in Aligarh and thus these 3 districts accounted for 68%. All these districts are in the vicinity of Delhi so it is difficult to say whether it as an impact of ATMA or locational advantage. Profitability was also reported in more enterprises in Sonapat and Baghpat while all the enterprises in Saharanpur or Sirsa, somewhat away from the consumption center of Delhi, have reported their non-sustainability which indicates that the locational advantage may be a deciding factor to set up an enterprise.

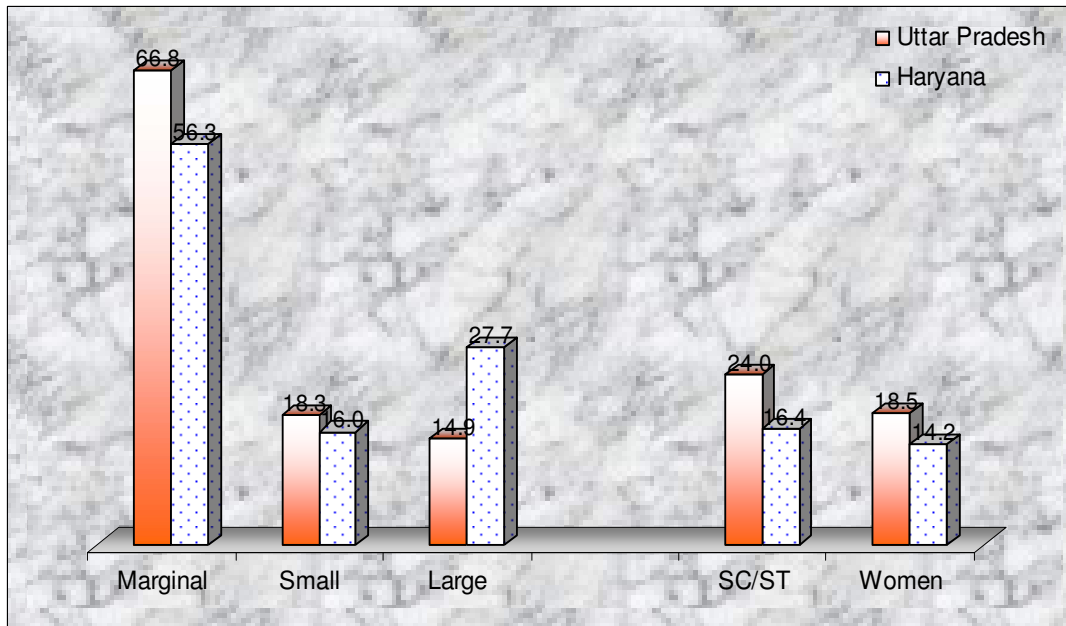
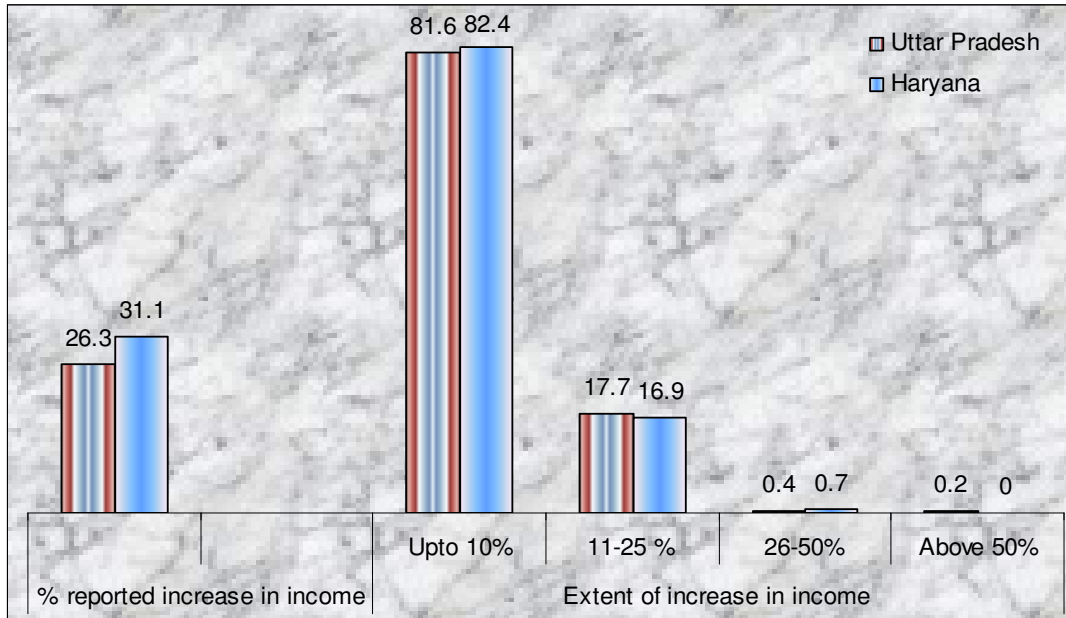


Increase in Income

6.18 The last question put to sample farmers was whether there was any increase in their income during the period 2005-06 to 2007-08 from various activities and if so, to what extent such an increase can be attributed to the extension under ATMA. The opinion of farmers in this regard is presented in Table 6.15.

Table 6.15: Farmers reporting increase in Income and Extent of Increase

State District	% Reported increase in income	Total	Extent of increase in income				Total
			Upto 10%	11-25 %	26-50%	Above 50%	
Uttar Pradesh							
Jalaun	10.3	680	84.3	15.7	0.0	0.0	70
Lucknow	23.5	680	76.9	23.1	0.0	0.0	160
Saharanpur	25.1	680	78.9	20.5	0.6	0.0	171
Baghpat	48.5	680	80.9	17.6	1.5	0.0	330
Bareilly	48.4	680	86.9	12.8	0.3	0.0	329
Aligarh	31.3	680	89.2	10.8	0.0	0.0	213
Maharajganj	8.8	680	80.0	20.0	0.0	0.0	60
Allahabad	21.9	680	59.7	40.3	0.0	0.0	149
Barabanki	19.0	685	91.5	6.2	0.0	2.3	130
Total	26.3	6125	81.6	17.7	0.4	0.2	1612
Haryana							
Sirsa	8.1	875	87.3	9.9	2.8	0	71
Sonepat	54.2	875	81.6	17.9	0.4	0	474
Total	31.1	1750	82.4	16.9	0.7	0	545
G Total	27.4	7875	81.8	17.5	0.5	0.1	2157



The increase in income from all sources is reported by 27.4% of the sample farmers while the increase in agricultural production was reported by 25 % farmers (Table 6.7). It indicates that agriculture was the main source of increase in income. At state level, the increase in income is slightly higher (31%) in Haryana as compared to 26% in UP. Across the districts, the maximum 54% of farmers reported increase in Sonapat district followed by Baghpat and Bareilly both at 49% and Saharanpur at 25%. Thus, the increase in income at district level is in consonance with other impacts like adoption of allied activities, prominent changes in cropping pattern and increases in yield.

Large majority (81.8%) of farmers reported slight increase (up to 10%) in income due to ATMA interventions followed by 17.5%, 0.5% and 0.1% who reported income increases to the tunes of 11-25%, 26-50% and more than 50%, respectively. Thus, it could be concluded that ATMA interventions have started showing impact in terms of income increase. It is worth mentioning here that any scheme to show impact at income and other long-term indicators needs time. At district level, increase above 10% was the maximum for 40% farmers in Allahabad and 23.5% in Lucknow and 21% in Saharanpur. This may be due to new horticulture crops in these areas and also access to emerging corporate chains of marketing especially for vegetables and fruits.