CHAPTER-III

AGRICULTURAL DEVELOPMENT

The green revolution is one of the biggest success stories of India cited globally, which enabled the country to convert the nightmarish "begging bowl" status to that of "self-sufficiency". It also brought about an element of resilience in agriculture to ward off the threat of farmers. The green revolution obviously ushered in an era of overall rural prosperity. Its impact was so dramatic that India became a role model for many developing nations. The green revolution in the late sixties of the 20th century was witnessed in Punjab, Haryana and Western Uttar Pradesh. This is known as the green belt of the country. The journey of agricultural development of Haryana is dynamic and historic. The following pages reveal this success story. The impressive agricultural transformation of Haryana-from food deficit state to food grain surplus state was possible due to major factors such as:

(i) Creation of infrastructure viz. seed production, irrigation and manufacture of agricultural implements.

(ii) Plant protection practices and extension services.

(iii) Land utilization.

(iv) Building of a strong agricultural research and development system and

(v) Human resource development. In an addition, the hard work of farmers was a deciding factor.

Natural Environment :

Man may grow rich in knowledge and intelligence, however, much he may have overcome nature but ultimately he will have to depend on the materials supplied by Mother Nature for the development of his economic life. The physical factors like topography, soils climate etc. and the basic influences, which lead to differences in land use, cropping pattern and agricultural yield. From sand dunes of Rewari district, the Ahir peasantry could extract good agricultural yield, the proverb "Kosli Ka Ahir, Kheti Ki Tadbir"- The Ahir of Kosli, the craft of agriculture testifies the fact. Therefore, the study of development history of agriculture in Haryana should start with an investigation of the physical features.

PHYSIGRAPHY

The greater part of Haryna forms the part of Indo-Gagnatic plains, withthe exception of outer Shiwalik ranges in Amabla district and Aravali ranges in Mahendragarh and Gurgaon districts, the entire Haryana is a broad level plain. The general slope of the terrain of Haryana is from to South-West and West with an exception of Bhiwani, Mahendragarh and Gurgaon where the slope is towards North. In fact these slope tendencies and topo differences result in formation of a saucer-like depression in the Eastern part of the Rohtak district and Western part of Sonipat district.

The gradient varies from steep to moderately steep in extreme North-East i.e. Shiwalik hills and in the South i.e. outcrop of Aravali hills and it creates problem of soil erosion. In the rest of the area of the state, the gradient is very gentle which makes movement of the surface water sluggish resulting in water logging and flooding.

In major parts of the Haryana plain, the slope is towards South-West and West and the unevenness of the surface is due to the old banks and channels of the streams or due to sand dunes. In sum, the plain is a continuous vast stretch of level to nearly level land with sand billows and rocky surface in the South and SouthWest and piedmont plain and Shiwalik hills in the North and South-East.

About 72 per cent of the state is a plain with elevation of less than 300 metres. About 25 per cent of the area is under sand dunes and hilly outliers and this area is also below 300 metres of the mean sea level except hilly and rocky outliers whose elevation varies between 300 to 600 metres. About 1.5 per cent of the state area is submountaneous, also called piedmont plain lying below the Shiwalik hills and the elevation of this area varies between 300 to 600 metres. Another 1.5 per cent forms the Shiwalik hills. This area is more than 400 metres above sea level and when viewed from Haryana plains, is dwarfed by the Himalayan ranges of Himachal Pradesh. In sum, the whole of the state can be divided into the following different topographical units:

1. Shiwalik hills above 400 metres.
2. Sub-mountaneous area i.e. piedmont plain between 300 metres to 400 metres.
3. Alluvial plain i.e. Ghaggar-Yamuna plain below 300 metres.
4. Undulating sandy plain.
5. Aravali outliers i.e., rocky hills lying between 300 metres to 600 metres.

SHIWALIKS AND SUB-MONTANEOUS AREA

Sub-mountaneous part consists of Shiwalik ranges which area of recent origin, and piedmont plain South of it. The Shiwaliks are made, for the most part, of barely coherent sand rock, with occasional clays, gravels and conglomerates, and ideal formation for gullying. These hills as badly eroded by monsoon hill torrents pose an area rampant with water erosion. The streams depositing the material at the foot of these hills give birth to piedmont plain, locally called Ghar. This stretch besides being undulating also consists of sands and gravels. In the sub-mountaneous tract, Morniand Tipra hills are found. In this foot hills zone the hills located in South are lower while Northern part constitutes two ridges of much higher hills lying in South-East to North-West direction with many form a connecting link between the Haryana plain and Himalaya. The ridges of Morni and Tipra are separated by Ghaggar valley and form the part of outer Himalaya. The highest point is reached in Karoh peak (1499 mts) on the Himachal border. The Southern slopes of these foothills have been badly eroded by the fast flowing hill torrents. As a result, these hill torrents popularly known as choes in local usage have deposited lot of coarse sand at the foot of these hills.

The Alluvial Plain :

The alluvial plain of Haryana is simply the usual alluvial richness. It is one of the cultural and economic hinterlands of India, contributing a major and significant share to the food rain reserve the nation. Besides, it occupies an important position in the sub-continent as it forms the water divide between the two mighty river systems of the Ganges and the Indus flowing into the Bay of Bengal and the Arabian Sea respectively. It comprises vast riverine plains of the older and the newer alluvium and, therefore, the lithological diversity in alluvial monotony has a stron bearing upon the distributional pattern of land use, cropping pattern and agricultural productivity.

The Ghaggar, Markanda, Saraswati and Yamuna rivers have left their imprint on the local relief of the alluvial plain. The region is considerably vast, more fertile and populous.

Indeed, the 300 metres significant contour represents a more meaningful boundary between the plain and the upland. The plain imperceptibly slopes from North-East to South and South-West, the gradients to which follow the lines of natural drainage. The plain is remarkably flat in the districts of Ambala, Kurukshetra, Karnal, Jind, Sonipat and the North-Eastern part of Hisar. Within the alluvial plain are the narrow low-lying flood plains, known as **Khaddar** of

Yamuna, **Naili** of **Ghagghar** and **Bet** of Markanda. Besides, the flat of the saucer in Sonipat and Northern parts of Rohtak districts forms a part of the said plain. At places, there occasional local undulations, which form old, rolling alluvial plains which include the **Rohi** of Dabwali and Sirsa tahsils (Sirsa district). The **Rohi** has many abandoned beds of old streams, in particular that of the Ghaggar, which provide fertile land suited to irrigation agriculture. The **Rohi** is not completely flat because of the presence of **tals** and **tibbas.** The local relief of the **tibbas** is very insignificant and these have either been under the process of levelling or completely graded on account of the extension of irrigation facilities with Bhakra Canal.

The older alluvial plain is covered by the Pleistocene deposits. The old alluvial plain (Bhangar) at varying depths contains carbonate of lime, usually occurring in nodules called **kankar,** which are from less than 1 centimetre to more than 5 centimetres in diameter. In the **Bhangar,** these **Kankar** formations occur much below the root-zone of the soil and such parts of the land are known as **Nardak.** In the upper reaches of the Saraswati stream in Thanesar tahsil of Kurukshetra district, the **kankar** seems to occur in the form of a pan close to the root-zone and this tract is termed as **Chhachhra.** The older alluvium of the **Nardak** and the **Chhachhra** has lower level of fertility as compared to the **Bhangar** alluvium on account of the **Kankar** formations in the former. On the whole, the **Bhangar** region is characterized by parties of saline efflorescence which is the result of the mechanical composition of alluviu, gentle slope of the land, and the capillary action during hot-dry season. The damage caped by salinity has, however, been considerably minimized by the tubewell and canal irrigation facilities which has provided satisfactory cultural ecology to the area. On the east of the alluvial plain is the flood plain of the Yamuna extending from its existing course to its old high bank. It is narrow in the tahsil of Jagadhri in Yamunanagar district, broadens towards Sonipat after passing through the districts of Kurukshetra and Karnal, and again narrow down in the district of Faridabad. In the North-West of the alluvial plain lie the flood plains of the Ghagghar and the Markanda called **Naili** and **Bet** respectively. Gulha Shahbad **Bet** and Sirsa **Naili** are wide and a larger area is inundation during the floods. The wide flood plains gradually merge into the adjacent old plains. On the other hand, the flood plain in Fatehbad tahsil is narrow with a recognizable change into the old planed. **Ghagghar** Naili is gently sloping, and largely cleared of natural vegetation for cultivation. This area has experienced a demographic and agricultural revolution of significant magnitude during the fifties resulting from agricultural colonization of the cultivable wasteland, where the irrigation facilities provided through the

minor irrigation facilities provided through the minor irrigation schemes and the Bhakra Canal brought dynamic changes in agrarian economy.

Sirsa **Naili** is wide and shallow. The result is that a far larger area is flooded in the South East of Sirsa tahsil. In this part, sand dunes were common as it lies close to the **Marusthal** of Rajasthan. These dunes were of shifting nature and crescentic in shape. Their march has been checked with the extension of irrigation facilities. The major part of the area has been reclaimed and brought under irrigation agriculture.

The water table in the **Khadar** , **Naili** and **Bet** regions is fairly high, facilitating irrigation from tubewells. The regions have fertile soils of recent deposits, which are replenished every year.

UNDULATING SANDY PLAIN : -

Sand dunes of various shapes and sizes form a thirsty land, covered by steppe vegetation in the North-West parts of Haryana. The **Bagar** lies in parts of Sirsa, Fatehabad, Hisar, Tosham, Loharu, Dadri and Jhajjar Tehsils. Of significance is the great amount of wind blown sand piled-up several metres high above the local flats, and stretched for several kilometres in length. This form a continuous strip of significant concentration of sand dunes adjacent to the **Thar** desert on about 11 per cent of the total area of the state. Sand dunes, found on a massive scale in this belt, extend from the South East of Sirsa tahsil along the Rajasthan border in Sirsa district. The sand dune belt widens gradually through the Bhiwani district and extends towards Jhajjar tahsil in the district of Jhajjar. The region resembles practically treeless undulating arid desert, and is locally known as **Bagar** . Sand dunes of varying magnitude are the main features of the SouthWest. At places, the local relief is as high as 15 metres but generally the dunes are 3 to 6 mertes above the level of the ground. Some of the dunes are mobile, while most are stationary. Their axes may be parallel to the wind direction. Generally, longitudinal dunes are common. The region is not altogether, as the name implies, a desolate treeless waste, but it does support thin scrubby vegetation in **tals.** Further, the monotony of sand heaps is broken by the rocky projections, such as in Bhiwani district. The region gradually rises in elevation towards the South-Eastern part terminating in Sohana Plateau and Aravalli Ranges. The mobile sand dunes seriously threaten to impair the prosperity of fertile alluvial plains lying to their North and North-East.

THE ARAVALI OUTLIERS :

Consisting of Alwar and Ajaibgarh series, the Aravalis extend for 90 kilometres in the Gurgaon rolling plain and Mahendragarh **Tals** and **Tibbas.** The hills traverse a Northeast-SouthWest direction and at places extend up to Delhi and reach the Yamuna River like isolated ridges. In Haryana, the absolute relief of the outliers is at no point higher than 650 metres. Besides Gurgaon, the Aravali outliers are scattered in Mahendragarh and Bhiwani districts and stand out distinctly against the level horizon above the sand dunes. Tosham Hills, attaining an absolute relief of 398 metres, in the district of Bhiwani have steep drops. Similarly, the Aravali extensions in Gurgaon have also moderately steep falls. These with bold and rounded forms present wind-borne and water-eroded topography. Equally apparent is the abundance of debris produced by mechanical disintegration of the bare surfaces. The main SouthWest-Northeast alignment of the hills is remarkably regular in the district of Gurgaon. On the whole, these form series of flat-topped ridges, half-buried either in the alluvium or the aeolian deposits giving a low local relief.

The Aravallis are fairly dissected by generally dry but at times viciously flowing **nullahs**. Dry channels, gullies and ravines sculptured by water erosion, the reliot hills, the boulders scattered over gullied surfaces, and the undulating dales and wales have made the Aravalis, picturesque at places. The water table may be as much as over 150 metres down making or traditional irrigation impracticable. The life is harsh because of scanty and thin soil cover. It is observed that about 50 per cent of the hills comprise sharply rising areas where soil erosion is active and soil cover is either thin or absent. Due to inadequacy of rainfall and rocky nature of the terrain, the Aravali hills generally lack vegetation cover.

In the Aravali ranges, there are found some of the gaps- Firozpur Jhirka-Nuh gap, Sohna gap; Sahibi gap and Narnaul gap and these provide different routes from Delhi to Western and Central India. Since time immemorial these gaps have provided routes to caravans and invading armies. Later, roads and railways have been built through these gaps.

WATER RESOURCES

Rainfall and Climate: -The state has sub tropical monsoon climate characterized by wet, hot summers and cool dry winters. The rainfall varies from 1100 MM in the foothills in the North to about 250 to 380 MM in the South. The rainfall is distributed from the middle of June to September and about 80% of the

rainfall occurs during this period, occasionally causing widespread flooding. The winter season is cool extending from mid October to early April. Some cyclonic rainfall usually occurs from January to March varying from about 100 MM in the North-East to about 50 MM in the South-West. The hot weather season from mid April to mid June is hot and dry with desecrating winds causing dust storms particularly in the South-Western regions. The coefficient of rainfall variation is over 40% in the desert areas to less than 25% in the wettest areas. The temperature seldom falls below 0^0C.

Ground Water Resources : - In the areas where canal irrigation was introduced since the middle of 20th century the water table has generally risen but in old irrigated tract of Western Jamuna Canal a declining trend in the water table has been noted.

The subsoil water occurs near the surface to depths greater than 52 metre in various parts of Haryana. In general terms, the water table is relatively shallow east of the 76^0 15'E longitude while to the West of this line the water table is from deep to very deep. This meridian roughly coincides with the Westward limit of the largest body of fresh and marginal quality ground water reservoir.

Covering the largest area, the subsoil water occurring to a depth of 6 metre occupies parts of Ambala, Kurukshetra, Jind, Karnal, Sonipat, Rohtak, Faridabad and Gurgaon districts. Isolated pockets of groundwater reservoir deeper than 6m also occur in this zone. The area benefits from the groundwater recharge from the Shiwalik hills and the Yamuna River, and seepage from numerous irrigation channels. However, the water table is deep to very deep in the Shiwalik hills. In rest of Haryana the groundwater is generally saline and deep to very deep, except where it is sufficiently recharged from the canal networks and infiltration from seasonal/ephemeral streams. The deepest depth of water table, more than 52 metre, occurs in parts of Mahendragrh district. Saline aquifer, arid climate and impermeable Aravali substratum and highly permeable sand dune surcafres characterize a major part of this zone.

The major thrusts in agricultural sector due to extension and development of canal irrigation and concomitant exploitation of groundwater resources since 1967 have had significant effect on the groundwater reservoir in Haryana. Changes in groundwater storage between 1967 and 1974 at assumed 10 per cent specific yield, suggests that the highest rate of accretion to the groundwater has occurred in the Bhaka Canal area (864.21 m.cu.m). This is followed by the Gurgaon canal area (52.93 m.cu.m.). Unfortunately, the largest increments to the

groundwater reservoir have occurred in the deep saline unusable resource. The average rate of groundwater with drawl for irrigation in the above canal command areas is: 433.28 m.cu.m for the Bhakra Canal area, 369.34 m.cu.m. for the Gurgaon Canal area. There are more than 3 lakh diesel-pumping sets and electric tubewell and 50 thousand wells, which irrigate more than 25 per cent of the net sown area.

In spatial terms the largest groundwater depletion has occurred in the fresh and marginal aquifer zones mostly in Ambala, Kurukshetra, Karnal, Sonipat and Gurgaon districts. A net accretion to the groundwater has taken place in deep saline water table, in the largest area covering a major part of the Jind, Hisar, Sirsa, Bhiwani, Mahendragarh and Rohtak districts of the state.

The Ground Water Cell of Agriculture Department created in 1972 is engaged in investigation, assessment, development and monitoring of ground water resources of the state. The groundwater assessment is carried out by monitoring of over 2105 observation wells selected in the state. The data from other agencies engaged in groundwater development is also pooled for the assessment of groundwater potential on block wise basis. On the basis of these estimates groundwater development schemes covering installation of tubewells, sprinkler, drip irrigation sets are formulated for providing financial support to the cultivators through various financial institutions.

The groundwater potential in the state is exploited through 6.00 lakh shallow tubewells and 3191 deep tubewells. The aquifer now left for developments are placed in a more heterogeneous hydro-geological environment where all type of problems possess much great challenge in the installation of tubewells. 30% of the shallow tubewells installed in the state fall in the depth range of 0-20m, 27%in 20-3-, 23% in 30-45m, 10% in 45-60m., and rest 8% lying in the depth range more than 60m with 2% are falling in the hilly terrain.

On the basis of groundwater assessment of 1997, out of 108 blocks, 47 blocks fall under dark category (%age of ground water development more than 85) 17 under grey (%age of ground water development between 65-85) and 44 under white category (%age of ground water development less than 65). The assessment is being updated on 1-4-2003 with the association of Central Ground Water Board, Government of India. The only dependable source of fresh water is ground water, which too is restricted to just 45% at shallow depth on June, 2003.

Land Resources

Land resources form the most important natural wealth of Haryana and their proper utilization is a matter of utmost concern to its people. The utilization of the land according to its use capability ensures that this resource is utilized to the best advantage. Its improper use leads to wastage and can lead to progressive deterioration and loss of productivity of this vital resource.

One of the most significant features of land use in the state is the large proportion of area suitable for agriculture that already has been brought under cultivation.

Classification of Land

Classification of land is a process which assigns each body or tract of land in an area to its proper class in a system of classes. The classes in the systems are defined in terms of the qualities or characteristics with which the classification is concerned. In India the classification of land has had its roots in agricultural statistics. Till 1950, the land in India was broadly classified into five categories: (i) Area under forests, (ii) Area not available for cultivation, (iii) Uncultivated lands excluding current follows; (iv) Area under current allows; and (v) Net area sown. But then it was realized that such a classification did not give a clear picture of the actual area under different categories of land use, required for agricultural planning. Hence, a reclassification was adopted from March, 1950. Under it, land in India is now classified under nine different categories, viz., (i) Forest, (ii) Barren and unculturable lands, (iii) Land put to non-agricultural uses, (iv) Culturable wastes, (v) Permanent pastures and other grazing lands: (vi) Miscellaneous tree crops and groves not included in the net area sown; (vii) Current follows; (viii) Other fallows, and (ix) Net area sown.

The total geographical area of Haryana as per village papers is 4375 thousand hectares, out of which 3458 thousand hectares i.e. 79 per cent of the total area is the net area sown and 10.7 per cent of total area is put to non-agricultural uses. There has been a tremendous increase in populations with the result that not only the total land per capita but also the proportion of cultivated land per capita has been steadily shrinking in size. The complete land utilization statistics has been given in the following pages: -

CLASSIFICATION OF AREA

(Area in '000' hect.)

Year	Total area according to village paper	Forest	Land put to non agri. uses	Barren and uncultur-able land	Permanent pastures and other grazing land	Land under mis. tree crops not incl. in net area sown	Cultur-able waste	Fallow lands other than current fallows	Current fallows	Net area sown	Cultivated area (10+11)	Total cropped area	Net irrigated area	Groos irr. area	Cropping Intensity
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1950-51	4389	24	223	202	182	16	343	0	417	2982	3399	3470	663	771	116.36
1955-56	4390	32	231	209	144	13	272	0	190	3299	3489	4504	836	1141	136.53
1960-61	4389	64	271	245	75	6	141	0	187	3400	3587	4583	1007	1206	135.79
1966-67	4399	91	257	232	46	4	87	0	259	3423	3682	4599	1293	1736	134.36
1967-68	4399	93	250	228	49	4	85	0	176	3514	3690	5150	1132	1780	146.56
1968-69	4399	92	276	206	57	5	60	1	429	3273	3702	4053	1312	1864	123.83
1969-70	4402	97	269	219	57	4	47	0	161	3548	3709	4941	1408	2158	139.26
1970-71	4402	99	309	181	54	3	41	0	150	3562	3715	4957	1532	2230	139.05
1971-72	4402	110	294	186	47	2	37	0	159	3567	3726	5048	1565	2325	141.52
1972-73	4402	117	305	177	46	2	34	0	168	3555	3723	5188	1632	2477	145.93
1973-74	4402	119	326	137	37	2	60	0	157	3566	3723	5150	1736	2584	144.42
1974-75	4402	107	358	119	44	0	41	0	216	3519	3735	4842	1779	2596	137.60
1975-76	4402	104	374	99	44	0	34	0	125	3624	3749	5451	1754	2732	150.41
1976-77	4402	110	376	89	43	0	36	0	104	3646	3750	5282	1798	2698	144.87
1977-78	4402	110	377	75	43	0	35	0	119	3645	3764	5435	1873	2776	149.11
1978-79	4402	110	378	73	43	0	36	0	114	3650	3764	5522	1917	2979	151.29
1979-80	4405	124	335	62	31	0	79	0	217	3557	3774	4862	2174	3131	136.69
1980-81	4405	132	369	65	30	0	30	0	177	3602	3779	5462	2134	3309	151.64
1981-82	4405	134	355	70	25	0	41	0	120	660	3780	5826	2248	34055	159.18
1982-83	4394	136	329	88	27	0	48	0	170	596	3766	5306	2356	2559	147.55
1983-84	4394	130	300	105	27	0	47	0	185	600	3785	5688	2190	3595	157.96
1984-85	4391	132	297	105	27	@	46	0	168	616	3784	5512	2189	3503	152.43

Year	Total area according to village paper	Forest	Land put to non agri. uses	Barren and uncultur-able land	Permanent pastures and other grazing land	Land under mis. Tree crops not incl. in net area sown	Cultur-able waste	Fallow lands other than current fallows	Current fallows	Net area sown	Cultivated area (10+11)	Total cropped area	Net irrigated area	Groos irr. area	Cropping Intensity
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1985-86	4391	166	236	156	28	1	23	0	168	3613	3781	5601	2248	3679	152.24
1986-87	4391	166	234	156	28	1	23	0	158	3622	3780	5662	2348	3913	156.37
1987-88	4391	166	233	172	29	2	23	5	528	3233	3761	4686	2579	3883	144.94
1988-89	4391	166	243	155	26	3	25	@	209	3564	3773	6012	2532	4074	168.69
1989-90	4380	168	287	104	21	3	29	0	175	3593	3768	5651	2657	4253	157.28
1990-91	4378	169	320	97	23	4	21	0	169	3575	3744	5619	2600	4237	165.56
1991-92	4385	170	277	102	25	4	43	0	256	3508	3764	5670	2666	4340	158.77
1992-93	4376	171	319	86	31	4	33	0	240	3492	3732	5853	2628	4473	167.61
1993-94	4374	167	322	91	29	5	38	0	209	3513	3722	5815	2663	4515	165.53
1994-95	4369	110	411	88	27	4	14	0	156	3569	3715	5962	2719	4597	167.52
1995-96	4398	110	401	94	24	4	23	0	156	3586	3742	5974	2761	4673	166.59
1996-97	4399	115	392	89	24	4	23	0	137	3615	3752	6075	2756	4785	168.00
1997-98	4402	115	355	86	25	5	37	0	144	3635	3779	6143	2793	4829	169.00
1998-99	4394	115	351	89	24	5	37	2	143	3628	3771	6320	2843	5042	174.20
1999-00	4400	115	368	96	22	5	23	0	219	3552	3771	6029	2888	5124	169.76
2000-01	4402	115	368	102	34	7	18	0	232	3526	3758	6115	2958	5223	173.43
2001-02	4372	45	425	101	25	7	30	0	173	3566	3739	6318	2938	5311	177.17
2002-03	4375	46	470	99	25	6	35	3	233	3458	3691	6032	2967	5199	174.44

Note : * Area under forest in115 the column 3 is not final because the data of the forest department has not been received so far present figures of column no. 3-4 are from revenue department.

Human history has been dominated by the relationship of man to land. Ownership of land provides a sense of well being security to people. In an agrarian economy like Haryana, the ownership of land and pattern of its distribution has direct bearing on generation, accumulation and distribution of income and wealth. Though agriculture in Haryana is predominated by small land marginal farmers, the agricultural scenario is characterized by the incidence of tenancy, landlessness, high degree of fragmentation and skewed distribution of holdings. These, intern, face direct bearing on farm production and income of the peasantry. Due to the pressure of population on land coupled with social desire for distribution of land, a number of land reform legislations, including tenancy reforms have been enacted by the state government. These legislations have affected the area and ownership of operational land holdings. Most of the holdings on the state are self-operated. The proportion of wholly leased in holdings are declining over time as is evident from the following tables:-

Statewise percent distribution of operational holdings according to ownership status

States	Year	Wholly owned and self operated holdings		Partly owned and partly leased-in holdings		Wholly leased-in holdings	
		No.	Area	No.	Area	No.	Area
Andhra Pradesh	1970-71	87.76	84.21	6.7	12.16	5.66	3.63
	1976-77	94.57	93.78	1.89	3.63	0.90	0.75
	1990-91	99.60	99.60	0.20	0.40	n	n
Assam	1970-71	75.89	71.39	8.54	17.94	15.57	10.68
	1976-77	85.50	84.16	2.06	4.10	3.03	1.63
	1990-91	89.70	89.80	6.60	7.40	2.60	1.90
Bihar	1970-71	99.60	99.68	0.18	0.16	0.22	0.17
	1976-77	99.50	98.10	0.35	1.10	0.14	0.16

	1990-91	99.00	98.60	0.70	9.32	0.10	0.20
Gujarat	1970-71	96.83	96.59	1.87	0.65	1.29	0.76
	1976-77	99.41	98.40	0.19	0.28	0.17	0.14
	1990-91	99.80	99.70	N	0.10	N	0.10
Haryana	1970-71	81.42	84.16	6.64	9.68	11.94	6.17
	1976-77	95.26	96.75	2.03	1.78	2.53	1.42
	1990-91	94.10	94.80	2.50	2.70	3.00	2.20
Kerala	1970-71	88.46	82.82	3.35	7.72	8.19	9.46
	1976-77	98.46	98.01	0.31	0.82	0.49	0.22
	1990-91	99.10	98.70	0.50	0.90	N	0.10
Madhaya Pradesh	1970-71	97.94	97.52	1.17	2.32	0.89	0.43
	1976-77	92.63	90.84	3.54	6.18	1.16	0.71
	1990-91	92.40	90.60	5.50	8.40	2.20	0.20
Maha-rastra	1970-71	91.86	89.47	5.08	8.16	3.06	2.32
	1976-77	95.59	94.49	2.69	4.13	1.59	1.36
	1990-91	99.60	99.40	0.20	0.40	0.10	0.10
Orissa	1970-71	91.52	91.59	5.13	5.96	5.45	2.10
	1976-77	92.95	92.26	1.87	1.99	1.06	0.69
	1990-91	93.20	99.20	1.10	1.40	0.10	0.10
Rajasthan	1970-71	89.43	91.95	5.13	5.96	5.45	2.10
	1976-77	95.23	96.15	1.87	1.99	1.06	0.69
	1990-91	97.90	98.20	1.10	1.40	0.10	0.10
Tamil Nadu	1970-71	91.98	91.19	N.A.	N.A.	N.A.	n
	1976-77	94.81	94.18	2.33	3.68	1.60	1.20
	1990-91	97.90	98.20	1.10	1.40	0.10	0.10
Uttar Pradesh	1970-71	96.97	96.31	0.48	0.21	0.60	0.40
	1976-77	98.78	98.17	0.22	0.49	0.27	0.17

	1990-91	97.90	98.10	1.60	1.50	0.34	0.20
West Bengal	1970-71	85.76	84.81	12.22	9.02	2.12	1.52
	1976-77	88.88	87.30	9.15	10.74	0.98	0.79
	1990-91	89.10	86.10	8.60	10.40	1.70	1.30
All India	1970-71	91.55	91.10	3.93	6.08	4.02	2.44
	1976-77	84.80	94.20	2.60	3.50	1.20	0.90
	1990-91	96.70	96.30	2.30	3.00	0.40	0.30

N= Not Significant

NA= Not available

Source: Agricultural Census Reports, Ministry of Agriculture, New Delhi.

Distribution of area leased-in according to terms of tenancy in major states

State	Year	Percentage area leased in on partly owned and Partly leased in holdings				Percentage areas leased in on wholly leased in holdings			
		Fixed money	Fixed produce	Share of produce	Other terms	Fixed money	Fixed produce	Share of produce	Other terms
Andhra Pradesh	1970-71	31.19	10.37	15.69	42.85	28.76	6.78	7.62	56.84
	1976-77	49.04	23.43	22.84	4.68	55.62	18.00	17.56	8.81
	1990-91	42.09	35.07	7.01	0.00	-	-	-	-
Assam	1970-71	10.26	10.21	12.37	67.16	14.87	2.67	2.10	80.36
	1976-77	23.16	31.12	18.26	37.44	21.69	12.96	19.33	46.01
	1990-91	21.60	20.00	17.60	8.00	-	-	-	-
Bihar	1970-71	N.A.	N.A.	-	-	10.84	0.80	67.97	20.30
	1976-77	12.89	8.88	33.04	45.17	20.08	10.50	30.78	38.61
	1990-91	2.20	13.00	78.30	0.00	-	-	-	-
Gujarat	1970-71	N.A.	-	-	-	62.95	3.91	5.74	27.50
	1976-77	28.00	6.83	8.09	57.06	33.49	1.96	2.22	62.31
	1990-91	45.50	9.10	18.20	18.20	-	-	-	-
Haryana	1970-71	20.95	0.69	59.78	18.54	23.55	0.44	57.15	18.26
	1976-77	27.24	26.36	37.80	8.93	30.85	14.24	42.79	12.10
	1990-91	50.50	6.80	36.90	3.90	-	-	-	-
Kerala	1970-71	46.79	34.64	2.06	16.51	51.40	18.95	0.28	29.37
	1976-77	26.30	14.84	14.46	44.39	37.08	10.94	5.90	46.07
	1990-91	40.00	0.00	0.00	40.00	-	-	-	-
Madhya Pradesh	1970-71	26.14	3.16	10.46	60.24	25.83	3.23	10.95	59.99
	1976-77	20.18	7.08	23.62	49.10	18.43	3.72	17.10	60.73
	1990-91	18.90	3.30	16.70	57.80	-	-	-	-

Orissa	1970-71	17.18	11.50	66.06	5.26	26.48	19.16	44.38	9.98
	1976-77	15.40	18.16	56.96	9.45	23.47	20.86	44.65	11.01
	1990-91	9.30	9.30	68.50	9.30	-	-	-	-
Rajas-than	1970-71	19.26	2.18	16.14	62.42	26.06	1.97	13.32	58.64
	1976-77	28.54	6.50	44.33	20.62	39.69	5.04	40.19	15.07
	1990-91	54.20	10.20	25.40	8.50	-	-	-	-
Tamil Nadu	1970-71	16.24	53.02	24.30	6.42	40.03	41.87	14.87	2.72
	1976-77	20.04	51.00	16.30	10.20	-	-	-	-
	1990-91								
West Bengal	1970-71	2.28	2.47	77.89	17.36	3.23	1.43	44.83	50.51
	1976-77	2.69	1.86	91.69	3.75	3.95	5.32	83.86	6.85
	1990-91	6.50	10.60	72.60	10.30	-	-	-	-

* The figures for the year 1990-91 are available for the entire tenancy and information on different groups shown above is not available.

Legislation for ceiling on landholdings had been enacted in all the states. The ceilings on land holdings and distribution of surplus area in some of the states is reported below: -

(Area in acres)

State	**Land Ceiling**	**Surplus area declared**	**Surplus area distributed**
Andhra Pradesh	27 to 324	74	NIL
Assam	50	68	1
Bihar	20 to 60	NIL	NIL
Gujarat	19 to 132	50	25
Haryana	27 to 100	170	65
Jammu & Kashmir	23.75	450	450
Kerala	6 to 20	Not Available	Not Available
Madhya Pradesh	25 to 75	84	13
Marashtra	18 to 126	271	123
Karnataka	27 to 216	NIL	NIL
Orissa	20 to 80	NIL	NIL
Punjab	27 to 100	178	64
Rajasthan	22 to 336	NIL	NIL
Tamil Nadu	24 to 120	25	16
Uttar Pradesh	48 to 80	241	121
West Bengal	25	794	Not Available
Delhi	24 to 60	Negligible	NIL
Himachal Pradesh	27 to 100	7	Negligible
Manipur	25	NIL	NIL

The most outstanding achievement of the government of Haryana was the completion of the gigantic task of the consolidation of holdings. It placed an important role in reshaping the social and economic pattern of the villages. In fact, all schemes of agrarian reforms and increased agricultural production depend largely on the success of the scheme of consolidation of holdings. The total area to be consolidated in Haryana was 102.22 lakh acres. Out of this, 98.52 lakh acres had been consolidated by the end of the Third Five Year Plan. The remaining area

was consolidated during 1966-67 and 1967-68. The entire programme of consolidation of holdings of the state has, thus been completed. This singular achievement alone was responsible for bringing about remarkable change in the life and economy of Haryana villages.

The remarkable consolidation work done, however, later affected and many holdings turned economic. Traversing to the pathological nature of the agrarian structure, an analysis of number of operational holdings by major size classes of farms i.e., marginal farmers having less than 1 hectare, small 1 and 2 hectares, semi-medium between 2 and 4 hectares, medium between 4 to 10 hectares and large 10 hectares and above, reveal that nearly 66.7 per cent of the holdings fall within 2 hectares having area of hardly 23.9 per cent. These farmers operating on thee land holdings largely undertake subsistence farming. The complete statistics of land holdings is tabulated below: -

Number and Area of Holdings by Ownership and by Size Group in Haryana: 1995-96* (All Holdings)

(Area in Hectares)

Size Group (in hect.)	Individual Holdings		Joint Holdings		Institutional Holdings		Total Holdings	
	No.	Area	No.	Area	No.	Area	No.	Area
1	2	3	4	5	6	7	8	9
Below 0.5	223827	62430	253023	86185	2613	765	479463	149380
0.5-1.0	146086	110029	188185	144071	925	675	335196	254775
1.0-2.0	146299	202627	190515	267842	1632	2573	338446	473042
2.0-3.0	82151	198496	113137	267009	1238	2987	196526	468492
3.0-4.0	54437	187054	76976	258112	528	1895	131941	447061
4.0-5.0	32686	148409	50349	224681	443	1977	83478	375067
5.0-7.5	27159	169031	53557	324158	695	4299	81411	497488
7.5-10.0	10980	94270	29884	250475	605	5131	41469	349876
10.0-20.0	5159	67882	26157	347827	1119	15926	32435	431635
20.0- and above	738	24845	5630	157738	1260	46328	7628	228911
Total	729522	1265073	987413	2328098	11058	82556	1727993	3675727

* Provisional

Source: Agriculture Census 1995-96

The vital question that deserves estimation is how much land would be required to cultivate for leading a satisfactory life. The Agrarian Reforms Committee has laid down three forms of the size of holdings.

(i) An economic holding, determined to the conditions of different regions, which must afford a reasonable standard of living to the cultivator and provide full employment to a family of normal size.

(ii) a basic holding, below the economic size, i.e. smaller than the economic holding to which the rehabilitation treatment may be applied, uneconomic in the sense of being unable to provide a reasonable standard of living to the cultivator, but not inefficient for the purpose suggested such a unit for individual cultivation with the assistance of the multipurpose cooperative organization in all other respects.

(iii) An optimum holding, with a ceiling to the size looking to the marginal capacity and financial resources of an average cultivator in India. The optimum size of a holding should be not more than three times of the size of the economic holdings.

To establish economic holdings, the following measures will have to be adopted: -

(i) The fixing of ceiling of holdings, so that surplus land beyond a prescribed maximum is available for distribution among those who have uneconomic holdings;

(ii) Those farmers who have extremely small holdings may be induced to give up their lands and shift to other occupations in rural areas, and

(iii) The pressure on land may be reduced by starting in rural areas to provide employment to the landless labourers and small peasants.

However, it seems different to create economic holdings in Haryana because:

(a) The number of holdings is too large and it will be difficult to convert all of them into economic holdings;

(b) The sentiment in favour of ownership of landed property is very strong, and

(c) in a democratic set up there is no possibility of using force on the cultivators to accept any of these measures.

Saline and Alkali Soils

In spite of fertile land and assured irrigation facilities, the expected agricultural prosperity in the state has been negated due to the development of salinity, alkalinity, and water logging in the canal commands. Excessive salt content present in soils proved deleterious to soil health and crop growth as a result of which in the year 1865 soils of village Moonak located at a distance of 40 km from Karnal were analyzed for salinity in the Royal School of Mines in England. Depending upon the nature of salts and reclamation needs such soils are commonly called by the names of saline soils, and alkali soils. The saline soils normally contain water soluble neutral salts with salt content exceeding 4 dS/m on electrical conductance of soil-saturated extract. The alkali soils consist of salts capable of alkaline hydrolysis and pH of the soil saturated paste more than 8.5. The formation and distribution of saline and alkali soils in Haryana is governed by geo hydrological conditions. The contour of 230 m above MSL separates the zones of alkali and saline soils. The zone lying below 230 m contour forming central and North-Western parts of Haryana acts as a sink for salts and regional ground water flow from the North-East and South-West. The areas experiencing the rise in water table are primarily underlain by saline groundwater, which are not as such suitable for irrigation purposes. The problem of water logging and stalinization are therefore, wide spread in this part of the state comprising Rohtak, Jhajjar, Gurgaon, Jind, Sonipat, Hisar, Bhiwani, Fatehabad, Sirsa and parts of Kurukshetra and Panipat districts. These occupy an area of 78, 057 ha. Unlike alkali soils these are not easy to reclaim. The problem confronting these soils needs to keep root zone free from salts and water by installing subsurface drainage. *Successful researches has been made and demonstrated at the field scale to rehabilitate such soils at village Sampla in Rohtak district.

**The work at Sampla farm showed that favourable salt balance in the root zone could be maintained even with shallower drains placed at 1.5 m. It is suggested that the need for drainage under monsoonal conditions is for control of salinity rather than of water table and the design of drainage system should be based on leaching requirements of crops for maintaining favourlable salt balance particularly at sowing and early stage growth. Disposal of saline drainage effluent should be achieved by operating the drains in the monsoon season and allowing the roots to feed on water table during rest of the year along with some supplemental irrigation at critical stages.*

The alkali soils occurring above the contour of 230 m are mostly found in concave soils cape positions which are about 15 to 30 cm lower than the adjoining

soils. These micro-low topographical positions favours the accumulation of free sodium carbonate in alkali soils. The alkali soils are most common in the districts of Kurukshetra, Karnal, Faridabad, and some parts of Ambala, Sonipat, and Hisar and covered an area of 84,720 ha. But now most of these soils have been reclaimed by adopting the famous CSSRI – Gypsum Technology**. But still, these soils are alkali in the substratum and unsuitable to grow sensitive crops and many fruit trees.

** After proper leveling, provide strong bunds around the field, irrigate and take soil samples from 0-15 cm depth for GR when the soil attains workable condition. Uniformly broadcast gypsum @ 10-15 t/ha (50%, GR) for a soil pH of 10-10.5 and mix with shallow ploughing. Take first crop of rice under unpuddled conditions. Transplant 5-7 weeks old seedlings grown in normal soils. Keep 4-5 seedlings per hill at 15x15-cm. Apply 150 kg N/ha in three splits along with a basal dose of P and K in the initial 5-6 years of reclamation of alkali soils. IR-8, IR-68, and Jaya varieties of rice are recommended for transplanting from last week of June to second week of July. P2-21 variety is recommended for late sowing. Sow wheat or berseem during rabi season preferably in the first fortnight of November. Apply 150 kg N/ha, a total of 7-9 light irrigation. Except a higher seed rate of 25%, other cultural practices fore wheat and rice are similar to normal soils. After the harvest of wheat sow dhaincha in summer using seed @ 60 kg/ha. Broadcast seed in standing water and thereafter apply light and frequent irrigation to keep the land wet. Incorporate 7-8 weeks Dhaincha crop in soil and transport rice crop without waiting for decomposition.

Ground Water Quality in Haryana:

The North-Eastern parts of the state comprising districts Ambala, Kurukshetra, Karnal, Panipat and parts of Sonipat and Mohenderagarh, contgain HCO_3/HCO_3-CI type waters. Except in Ambala, Karnal and Sonipat districts, majorities of groundwaters in the state are of poor quality either because of high salinity of alkalinity. Waters of high alkalinity hazards are found in Ballabgarh, Sohna, Faridabad, Gurgaon, Mohinderagarh, Narnaul, Bawal, Pataudi, Dadri (Bhiwani), Salhawas (Jhajjar), Pundri, Guhla and Kaithal. These waters comprise nearly 20 per cent of the underground waters of the state. In South-West parts of Haryana, groundwaters are highly saline in nature. Flexible water quality guidelines for irrigation purposes keeping in mind a number of factors such as crops, soils, irrigation, and other management practices have been developed and popularized in the farming community. Of the total annual groundwater utilizable potential of 0.88 million ha-m, nearly 70 per cent are already being exploited. An

estimated 0.27 million ha-m/year additional potential can be available for future development.

The Central Soil Salinity Research Institute, Karnal:

Established in 1969, Central Soil Salinity Research Institute is the premier research organization dedicated to pursuing interdisciplinary research on salinity management and use of marginal quality irrigation waters in different agro-ecological zones of the country. Over the years, it has grown into an internationally recognized Centre of excellence in salinity research. The major research activities include preparation and digitization of database on salt affected soils using remote sensing and GIS, developing technologies for optimal management and amelioration of alkali soils and the use of poor quality waters for crop production. Agro-forestry on salt affected soils is another area of focus. Development of regional salt and water balance models, monitoring and evaluation of irrigation system performance in saline environment and developing technologies for skimming and recharging fresh water in saline groundwater regions are also addressed. Development of high yielding genotypes in rice, wheat and mustard, tolerant to salt and water logging stresses by both conventional as well as modern breeding and assimilating physiological approaches are the major concerns. In addition to evaluating and transferring the developed technologies the institute also imparts training at national and international level.

The institute has made its mark by greening of 1.1 million hectares of wasted salt affected soils in the country, contributing more than three million tonnes of food grains.

Out of total geographical area of 44.23 lakh hectares, about 50% area is severely affected with the problems of soil erosion, alkalinity, salinity and water logging. The soil erosion occur mainly due to water and wind. The soil erosion through water occurs mainly inthe area falling in Shiwalik foothills and in Araveli ranges. It is estimated that about 5.50 lakh hectare area is affected with this problem, whereas about 12 lakh hectare area is affected with wind erosion which occur mainly in South-Western part of the State. An area of 2.32 lakh hectare is affected with alkalinity of varying degree and 2.55 lakh hectare with salinity and water logging. Soil is, in fact, like a bank. We cannot take from it more than we deposit. Nature permits no overdraft.

Several externally aided/centrally sponsored and state schemes are being implemented in the state. Under these schemes, soil conservation measures are taken up on watershed basis, which include construction of check dams, water

harvesting structure, gully plugs, percolation embankments, diversion bunds, vegetative measures etc.

The implementation of watershed development schemes helped in checking soil erosion resulting in increased land productivity. The harvesting of rain water helped in conserving the moisture in-situ and recharge the ground water. Water availability for human consumption, livestock and irrigation is also augmented. The underground water level, which is fast depleting has been checked.

For judicious use of precious ground water, improved on farm water management practices are propagated. Sprinkler irrigation system is being promoted by providing subsidy incentive. In order to improve on farm water conveyance by reducing evaporation and seepage losses from field channel and to avoid labour intensive process of maintenance of open channels, under ground pipelines system of water conveyance is being promoted by providing subsidy incentives.

Implementation of Soil Conservation Programme:

The state has been divided into 5 divisions namely Ambala, Karnal, Rohtak, Bhiwani and Gurgaon and in each division, one Divisional Soil Conservation Officer has been posed. Each division normally has four Sub-divisions headed by Assistant Soil Conservation officer Agriculture Development Officers (Soil Conservation) are the base workers responsible for executing the different soil and water conservation programmes/activities.

Broad Objectives of Soil Conservation Programme:

- To prevent the land degradation adopting multi disciplinary integrated approach.
- To improve the land capability and moisture regime in watershed.
- To reduce the surfaces run off.
- To upgrade the skills in planning and execution of land development programmes.
- To improve farm water management.

- To increase the water use efficiency.
- To conserve moisture in-soils.
- To restore ecological balance through scientific management of land and rainwater.
- To reclaim alkali affected soils.
- To improve soil moisture by adopting soil conservation measures including gully control, percolation embankment construction of check dams, stock ponds diversion channel, water harvesting structures and vegetative measures etc.

	Soil Conservation measures	**Benefits**
1	Vegetative measures	The vegetative cover provided to demanded soils helps in shielding the soil cover from water erosion.
2	Agro-forestry	Besides checking water erosion, it helps in catering the need of fodder fuel and wood of the local community.
3	Water-harvesting structure	Rainwater is harvested through these structures which helps in recharging the ground water table the stored water even helps in providing life saving irrigation in rabi crops.
4	Gully Plugging, check dams, crate wire structure, loose boulder structure, Earthen structure, Percolation Embankment and stock pond.	These measures help in checking land degradation, soil erosion, bank stabilization, reduction in runoff, recharging ground water, moisture conservation etc.
	Land Reclamation	Appliction of gypsum in alkali affected soils helps in reclaiming the affected soils. High pH value of soils is brought down at normal level. Toxic salts are leached down to sub soil layer beyond the reach of crop root

		zone. Soils become alkali mainly due to the presence of toxic carbonates and bicarbonates of sodium and calcium salts. The electric conductivity of alkali soils ranges between 2.5 to 4 mMhos. Whereas, the cations exchange capacity of sodium salt is more than 15%.

Water management

1	Sprinkler Irrigation System.	The Sprinkler Irrigation System is scientific technique for water saving device. The use of sprinkler irrigation system saves precious water. More area is brought under cultivation; Fertilizer and pesticides can be sprayed uniformly.
2	Under ground pipeline system of water conveyance.	The system is quite effective where flow irrigation is required over traditional method of flood irrigation. Water losses through evaporation and transportation is reduced to nil. The system once laid can remain effective for many years.

(A) National Water shed Development Project for Rainfed Areas.

This centrally sponsored scheme is in implementation since 1992-93. At present, the Scheme is being implemented in 10 blocks namely, Pinjore, Barwala and Raipur Rani in Panchkula district, Shehzadpur in Ambala district, Tosham, Siwani and Charkhi Dadri in Bhiwani district, Hisar-I and Hisar-II in Hisar district and Mahendergarh in Mahendergarh district. Ten watersheds have been identified for implementation during 10^{th} five-year plan. During the year 2003-04 total 36 micro watersheds were taken up for treatment consisting an area of about 500 hectares each. As per guidelines "People's Participatory Approach" is adopted for integrated development.

(B) Scheme for Enhancing Productivity in the Degraded Land Falling in the catchment of Flood Prone River (Ghaggar).

This 100% centrally sponsored scheme is under implementation since 1993-94. The scheme envisages to have moderate influence on the flood situation in the state. The area of operation falls under the districts of Yamunanagar,

Panchkula and Ambala. The Ghaggar catchment has been surveyed and delineated into prioritized watersheds by All India Land Use Soil Survey Organization, New Delhi. As per the latest report, 94 sub-watersheds fall under the category of very high and high. At present works in 8 sub-watersheds are under implementation. Various soil conservation activities are taken up for the treatment of drainage line, arable and non-arable land. An amount of Rs.149.96 lakh was utilized and an area of 5073 hectares was treated during 2003-04.

(C) Reclamation of Alkali Soils

This centrally sponsored scheme is under implementation since 1986-87. However, the programme of land reclamation was started in the state from the year 1972-73. Under the reclamation of alkali soils, 25% subsidy on purchase of gypsum ingredients is provided to the farmers under the centrally sponsored scheme for land reclamation. The State Government during 2003-04 arranged Rs.100.00 lakh out of its own resources for raising subsidy level from 25% to 50%. Thus, 50% subsidy was provided to the farmers. Green manuring component under the scheme is taken up on 100% government cost. Dhaincha seed for green manuring is distributed to the beneficiaries who have reclaimed their land. An area of 11960 hectares was reclaimed.

(D) Improved on Farm Water Management

The programme of popularizing the installation of sprinkler irrigation was started from the year 1972-73 under state plan. The state plan scheme remained in operation till 1995-96 on sufficient funds was available under centrally sponsored schemes.

(i) Under this centrally sponsored scheme, subsidy is provided on installation of sprinkler irrigation system as a water saving technique. Sprinkler irrigation system is adopted for judicious use of available scarce irrigation water. Subsidy under the centrally sponsored schemes is being provided at the following rate.

(a) Maximum Ra.15, 000/- per set in case of SC/ST and women farmers.

(b) Maximum Ra.10, 000/- per set in case of other categories of farmers.

(c) Under Micro Management Mode (MMM) subsidy on sprinkler irrigation system is provided @ Rs.10, 000/- or 25 of the cost of the set, whichever is less to all categories of the farmers.

The scheme is being operated throughout the state. However, the sprinkler irrigation system has been found successful and more popular in South-Western part of the state where soils are sandy with uneven topography. So far about 82000 sprinkler sets have been subsidized under the State and various centrally sponsored schemes.

(E) Land Levelling

This scheme is in operation since 1973-74. This state plan scheme is under implementation throughout the state land levelling helps in conserving rain water, even distribution of irrigation water, application of fertilizer and other inputs becomes easier and thus productivity of crops increases. The land levelling involves huge investment. Therefore, state government provides subsidy @ 50% to the farmers having land holding up to 3 hectare and 25% to other farmers having land holding above 3 hectare under this schemes.

Under the scheme, during the year 2003-2004, an amount of Rs.8.72 lakh was spent and 211 hectares area was levelled.

The secret of good farming is how to manure in order to raise the best crop at the loWest level of manuring. Most of the soils suffer from deficiencies in nitrogen, phosphoric acid and humus, while laterite soils have sufficient humus and nitrogen. The deficiency of laterite soils is in potash, phosphoric acid and lime. These deficiencies can be made up by applying organic materials as well as the inorganic fertilizers.

Increasing crop yields per unit area through improved seed, judicious use of fertilizers and adequate irrigation water has been the success story of crop production amongst the good management practices responsible for increasing crop productivity adequate supply of nutrients for up-take throughout the active growth period is very important. The consumption of fertilizer is one of the most important determinants of agricultural growth in the state. The government had insured to see that fertilizer reaches to farmers in the remote areas also.

The increase in fertilizer consumption has contributed significantly to a sustainable production of food grains in the country. The over all consumption of fertilizers in the state has increased from 13347 metric tonnes during 1966-67 to 1021887 metric tonnes during 2003-04. The different type of fertilizers, which are mostly, used are nitrogenous, phosphatic and potassic. The consumption analysis of these important fertilizers shows that maximum increase in the rate of fertilizer consumption is in the nitrogenous fertilizers. The consumption of major fertilizers in the state from the inception of the state to 2003-04 is as under: -

(in metric tonnes)

Year	N	P	K	Total
1	2	3	4	5
1966 - 67	12626	574	147	13347
1967 - 68	30227	1726	521	32474
1968 - 69	40325	5513	1186	47024
1969 - 70	47000	5120	1800	53920
1970 - 71	60972	6860	2228	70060
1971 - 72	73432	6305	2397	82134
1972 - 73	83106	8175	2611	93892
1973 - 74	94060	16473	4464	114997
1974 - 75	65662	6682	2224	74568
1975 - 76	85904	8287	2259	96450
1976 - 77	98050	15181	5863	119094
1977 - 78	156048	28735	9338	194121
1978 - 79	164277	31740	10228	206245
1979 - 80	174005	30622	10906	215533
1980 - 81	189759	31390	11954	233103
1981 - 82	211073	31669	10717	253459
1982 - 83	224729	37409	9701	271839
1983 - 84	259443	53028	13679	326150
1984 - 85	272745	56246	7629	336620
1985 - 86	296394	69639	6154	372187
1986 - 87	327037	81957	5843	414837
1987 - 88	300695	88319	4889	393903
1988 - 89	383610	119618	5944	509172
1989 - 90	402595	129067	3822	535484
1990 - 91	443245	138005	5042	586292

1	2	3	4	5
1991 - 92	470447	161586	5122	637155
1992 - 93	464711	141418	2510	608639
1993 - 94	522875	148445	364	671684
1994 - 95	559118	150509	2626	712253
1995 - 96	587045	133582	3160	723787
1996 - 97	619183	139180	3095	761458
1997 - 98	649925	180801	3799	834525
1998 - 99	662679	171768	3950	838397
1999 - 00	670386	226206	5207	901799
2000 - 01	714308	206319	9668	930295
2001 - 02	742049	232161	9750	983960
2002 - 03	690261	221692	9232	921185
2003 - 04	768269	237376	15942	1021887

PLANT PROTECTION

With the start of farming since immemorial times, the pest are continuously damaging the crop during growth and storage also; therefore, man is continuously struggling against the pests to protect his food, shelter and living. Before the introduction of pesticides, certain good cultural/mechanical practices were followed by the farmers to tackle most of pest problems. The pests not only cause qualitative losses but also affect the quantity of produce.

Modern farming has become highly input intensive and greatly depends on chemical pesticides for controlling the pests. Farmer went on making the increased use of chemical pesticides with the assumption that chemical pesticides could alone solve the pest problems. No doubt with application of chemical pesticides, the crop yields have increased quantitatively and qualitatively due to the timely effective control of pests and disease of field crops but it has done damage also. Certain chemical pesticides are also for safe storage of farm produce.

Pesticide Consumption:

When the state came into being there was a consumption of pesticides of 273 MT (TGM) only. Pesticides were used very on limited scale and pest/disease/weeds were controlled by other farming practices but with the introduction of high yielding varieties a spectacular increase in pesticides consumption was noticed year over year, thus level of consumption went to 5266 MT during the year 1991-92. The farmers rather than making judicious use of chemical pesticides went for excessive use in indiscriminate way, which posed certain problems such as pollution and resistance against certain pesticides.

The information relating to year wise consumption pesticides is given under:

Year	Tonnes	Area covered ('000' hectares)
1966-67	273	1917
1967-68	293	1980
1968-69	327	2062
1969-70	363	2217
1970-71	412	3206
1971-72	482	2235
1972-73	485	2945
1973-74	1525	3520
1974-75	1335	3203
1975-76	1400	3733
1976-77	1600	4533
1977-78	1600	4902
1978-79	2000	4863
1979-80	2100	5455
1980-81	2150	5058

1981-82	2250	4908
1982-83	2641	5202
1983-84	2753	5985
1984-85	1313	6442
1985-86	3608	7020
1986-87	3995	7550
1987-88	3700	6776
1988-89	4407	5949
1989-90	4690	6190
1990-91	5165	6420
1991-92	5266	6490
1992-93	5203	6630
1993-94	5198	7443
1994-95	5102	7396
1995-96	5100	7880
1996-97	5045	8160
1997-98	5040	8791
1998-99	5035	8794
1999-00	5030	8802
2000-01	5025	8798
2001-02	5020	8794
2002-03	4826	8800
2003-04	4700	8605

Seed

Good quality seed is the basis of successful agriculture. The Agriculture Department rightly pays much attention to ensure the multiplication and supply of seeds of improved varieties through State Seed Corporation and Private Sector. The quality of seed is monitored under Seed Act, 1966/Seed Control Order, 1983. The better yielding varieties of seeds recommend for the state are as under: -

Rabi	
Wheat	PBW, 343, UP-2338, Raj 3765, WH-283, WH-147, PBW-373, WH-542, C-306, Raj-3077, HD-2687, WH-711
Gram	G-235, HC No.1, HC No.3
Barley	BH-75, PL-172, BH-393
Mustard	RH-30, Varuna, Laxmi, Jai Kisan, RH-9304
Toria	T-9, TL-15
Lentil	Sapna, Garima
Fodders	
(i) Barseem	Mascavi
(ii) Lucerene	T-9
(iii) Oats	HFO-114, OS-6, OS-7, Haryana Jai-8
Kharif	
Paddy	HKR-126, HKR-120, PR-106, IR-64, Pusa-44, HBC-19,PR-13, Pusa Sugandh-2, PR-116, Pusa RH-10
Cotton	RG-8, F-846, H-1098, HS-6, HD-123, H-1117, AAH-1, HHH-223, LHH-144
Pulses	
Arhar	Manak, Paras,UPAS-120

Moong	K-851, Asha, Muskan
Mash	T-9, PDU-I
Moth	RMO-40
Bajra	HC-10, HC-20, HHB-67, HHB-50, HHB-94
Groundnut	MH-269, HNG-10, MH 2 & 4
Til	HT-1
Guar	RGC-936, HG-365
Soybean	PK-1024, PK-1042
Castor	Jyoti
Maize	HHM-I
Sugarcane	
(a) Early	CO-7717, COJ-64, COH-56, COH-99, COH-92
(b) Medium	COS-767, COS-8436
(c) Late	CO-1148, COH-35

The table below shows the progressive increase in seeds distributed from year to year for meeting the increasing demand of the farmers:

Year	**Seeds distributed (in qtls.)**
2000-01	439187
2001-2002	523315
2002-2003	511459
2003-2004	586850

FARM MECHANIZATION

Improved seed varieties, better fertilizer use, efficient plant protection measures and effective crop production management contributed to production increase. Nevertheless, use of tractors and other improved farm implements played a significant role in augmenting labour and agricultural productivity. It would be interesting to know that as the states' agricultural production and productivity increased during the last three decades, use of farm machinery rose likewise. There were only 4803 tractors in Haryana State in 1966-67 which rose to 2.22 lakh in the year 2002-03. Irrigation pumping sets increased from 26,957 (1966-67) to 5,11,059 in 1991-92, and over 6.00 lakh in 2001-02. Similar, trends were observed in other farm implements like tillage machinery, seed drills, crop sprayers and dusters, power operated crop threshers and combine harvesters. Tractor, tubewells, power crop thresher symbolize the index of farm mechanization. The average cultivable area under tractor and tubewells in the state is about 17 hect. and 6.3 hect. respectively. The farm power availability is now 2.2 Kw per hect. and rank second in the country.

The revolution in wheat and rice production in Haryana has not only greatly increased the production, but it also has had many indirect effects on both the farmer and economy. Within short span of time, Haryana has mechanized its agriculture by creating a huge infrastructure at a massive cost made available by commercial banks and State Land Development Banks and with the efforts of hard toiling farming community of the state.

If the high-yielding varieties, chemical fertilizers, pesticides irrigation facilities are the catalysts that have ignited the green revolution then farm mechanizations have fuel that has powered its forward thrust. The increased mechanization in production technology has increased rather than decrease the employment opportunities for labour and above all it has helped to reduce drud Ogery and increased the efficiency of human energy. Mechanization has also stimulated the increased demand for fertilizers, pumps, services, other material besides rapid growth of agro-industries. The state of Haryana is the pioneer state in the manufacture of improved machines and tools. The state is supplying such implements to the neighboring states. One shudders to think that what would have happened to the increased volume of wheat if traditional method of threshing by treading out of the grain with bullocks followed by winnowing continued.

Mechanical threshers and combine harvesters saved the way and made the task easy. Hundreds of thousands of small and big threshing machines have been produced in Haryana and sold by hundreds of small manufactures during the past many years thus avoiding the loss of much of the crop after harvest and also providing additional employment in many new small village industries.

For enhancing the productivity and sustainability of the rice-wheat system without seriously affecting the natural resource base and the environment, several resource conservation technologies have been developed and are being promoted but there is plenty of reliable evidence to indicate that Zero Tillage Technique for sowing of wheat saves time, capital and also checks spread of weeds. Encouraging with the results of Zero Tillage. Technology evolved by CCS Haryana Agricultural University, Hisar the Department of Agriculture introduced this technology at the farmer's field during the year 2000-01 and laid out demonstration on the farmer's field. Being highly convinced with the performance and the result, of Zero Tillage Machine which saved both time and money, the farmers came out in a big way for purchasing this machine during the year 2001-02. To give a further boost to this programme, the government provided subsidy @Rs.3000/- per machine for the year 2001-02 and later on increased the subsidy Rs.4000/- to 4250 for 9 tyne & 11 tyne respectively per machine for the year 2004-05, 5500 machines have been provided to the farmers in the state of Haryana. Haryana about state has the proud honour of 3 major tractor-producing units with an actual turn over of 30% of total tractor production in the country. The credit institutions have also played a vital role in pushing the farm mechanization in the state. Loans aggregating to Rs.351 crore have been distributed in the state to the farmers for the purchase of farm machinery by State Cooperative Banks. Similarly, the farmers have been advanced Rs.7781 crore by State Cooperative Banks for installation of Rs.6 lakh MI units since 1966-67. By increasing the overall irrigation facilities, it has become possible for the farmers in the state to use tractors and allied farm machinery for the maximum number of hours around the year. The cost of tractor and allied farm machinery has increased manifolds during the period, which has become a hurdle in farm mechanization in the state. The hike in the prices of steel items has made farm implements and tools costlier to the farmers each year. The State Government has been drawing the attention of Government of India to consider measures for lessening the burden on the farming community by reducing the direct and indirect taxes on tractors and allied farm machinery

Thus, the green revolution experienced in Haryana in the late sixties of the last century and the achievement of self-sufficiency in food-grains represent the medium success story of Haryana. Indeed, the achievements in agricultural production so far do not fully reflect the strength of the state agricultural potential. It was very much augmented, particularly after the establishment of Agricultural University at Hisar, to meet the specific requirements in the prevailing socio-economic situation. The state Agriculture Department concerted effort towards the development of agricultural infrastructure was something phenomenal. Equally important, the farmers in the state- big and small- even in the dry areas became aware, through the extension work as well as from their own experience of the application of new and improved practices, of the benefits of new technology. Their demand for modern inputs as well as eagerness to know about improved methods increased, of and the analysts found the emergence countryside of Haryana very different from the one known prior to 1966. All these developments- the potential of state agricultural capital and the response of the farmers- offered a great promise for acceleration of agricultural growth.

To examine critically the experience of green revolution abinitio look at statistics. The agricultural development of Haryana was largely due to the introduction of new technology. The area under high yielding wheat increased from 2 per cent in 1966-67 to 90.4 per cent in 1978-79, and the area under high yielding rice increased from 0.2 per cent to 71.9 per cent. There was also an increase in area under bajra and maize, though this was smaller in content. Due to the introduction of high yielding wheat and rice, the average yield of wheat increased from 1,275 kgs per hectare in 1964-65 to 2295 kgs per hectare in 1978-79. The area under rice increased from 1438 kgs per hectare to 2680 kgs per hectare. The cropping intensity increased from 1.22 per cent to 1.51 per cent. Consumption of fertilizer per hectare increased from 2.90 kgs per hectare to 36.95 kgs pr hectare. Number of tractors increased from 5,000 to 45,000. All these factors contributed to the increase in agricultural productivity. However, higher productivity crops grew at the cost of pulses. This can be seen from the fact that in the period 1955-56 to 1957-58 the area under pulses was 36.3 per cent of cropped area, while in 1966-67 to 1979-80 it was 21.2 per cent. The green revolution benefited bigger holdings more than smallholdings, as bigger holdings showed production increase of 96 per cent as compared to 36 per cent on smaller holdings. The total food grain production, which was 25.92 lakh tonnes in 1966-67, showed a marked increase throughout the period and was 63.33 lakh tonnes in 1978-79,

showing an increase of about 145 per cent. Cotton and sugarcane outputs also showed a significant increase but it was only marginal in the case of oilseeds. To conclude the initial relative position of growth rates for food and non-food grains in the two states of Punjab and Haryana vis-a-vis India the following table is reflective:

Annual Compound rates of growth of indices of crop production for food grains and non-food grains crops.

Period -I Average 1952-53 to 1954-55

Period –II Average 1976-77 to 1978-79

Crop	Food grains			Non-food grains		
State/ period	Period-I	Period-II	Total	Period-I	Period-II	Total
Haryana	1.52	7.50	4.47	9.32	2.46	6.23
Punjab	3.55	9.02	6.25	3.98	3.46	3.72
All India	1.32	3.84	2.57	3.17	2.63	2.90

During period-I, the rate of growth of non-food grains was higher as compared to the rate of growth in food grains but during the period-II, position was reversed, when the rate of growth in food grains was much faster whereas there was actually a decline in the rate of growth of non-food grains. This decline was much more marked in Haryana. For the entire period, however, Haryana registered a higher to that of food grains.

This set in the momentum in agricultural production in Haryana. The statistics given in the next pages speaks about quantum jump in agricultural sector, which paved way for large export potential. Haryana ranks first in the country in the export of basmati rice.The crop statistics has been given in the following pages :

CROPWISE AREA OF VARIOUS CROPS (Area in '000' hects)

Sr. No.	Crops	66-67	67-68	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
(A)	**Kharif**																						
1.	Rice	192	217	229	241	269	291	290	292	276	303	330	370	458	508	484	506	490	536	557	584	628	464
2.	Jowar	270	293	208	231	207	194	189	186	162	162	183	174	145	135	136	118	116	152	151	115	151	134
3.	Maize	87	115	88	111	114	114	110	118	123	139	122	95	89	78	71	68	56	54	61	51	54	40
4.	Bajra	893	885	874	931	880	882	903	956	921	1005	958	886	872	814	871	852	780	841	748	646	774	485
5.	Kh. Pulses	39	78	32	59	54	39	33	40	35	37	36	28	23	25	37	31	25	44	47	47	37	46
Total Foodgrains	**Kharif**	**1481**	**1588**	**1431**	**1573**	**1524**	**1520**	**1525**	**1592**	**1517**	**1646**	**1629**	**1553**	**1587**	**1560**	**1599**	**1575**	**1467**	**1627**	**1564**	**1443**	**1644**	**1169**
(B)	**Rabi**																						
6.	Wheat	743	841	898	1017	1129	1177	1270	1177	1118	1226	1348	1359	1482	1477	1479	1564	1722	1784	1705	1700	1783	1731
7.	Gram	1062	1160	577	1084	1063	1119	970	994	704	1106	1029	1148	1065	548	723	1047	508	647	622	761	611	201
8.	Barley	182	302	165	146	109	91	144	154	226	176	103	97	91	81	125	120	82	77	67	89	69	63
9.	Rabi Pulses	52	58	46	46	43	47	54	47	41	41	36	40	47	28	37	35	27	27	24	37	30	18
Total foodgrains	**Rabi**	**2039**	**2361**	**1686**	**2293**	**2344**	**2434**	**2438**	**2372**	**2089**	**2549**	**2516**	**2644**	**2685**	**2134**	**2364**	**2766**	**2339**	**2535**	**2418**	**2587**	**2493**	**2013**
Total Rabi Foodgrains	**Kh. &**	**3520**	**3949**	**3117**	**3866**	**3868**	**3954**	**3963**	**3964**	**3606**	**4195**	**4145**	**4197**	**4272**	**3694**	**3963**	**4341**	**3806**	**4162**	**3982**	**4030**	**4137**	**3182**
(C)	**Commercials**																						
10.	Sugarcane (gur)	150	121	160	169	156	114	125	149	161	159	168	197	191	132	113	145	147	132	116	103	126	142
11.	Cotton	183	241	212	194	193	242	257	251	247	254	243	264	286	315	316	329	397	404	293	345	380	417
12.	Kh.oilseed	14	16	17	14	14	12	10	14	16	16	14	12	13	9	12	13	11	11	15	16	14	8
13.	Rabi oilseeds	198	246	66	120	129	163	211	169	198	138	105	177	117	131	299	203	165	195	311	344	271	327
Total oilseeds		**212**	**262**	**83**	**134**	**143**	**175**	**221**	**183**	**214**	**154**	**119**	**189**	**130**	**140**	**311**	**216**	**176**	**206**	**326**	**360**	**285**	**335**

CROPWISE AREA OF VARIOUS CROPS (Area in '000' hects.)

Sr. No.	Crops	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	2000-01	001-02	2002-03	2003-04
A) KHARIF																	
1.	Rice	602	641	661	637	707	755	796	830	831	914	1086	1083	1054	1028	906	1016
2.	Jowar	155	103	130	103	118	90	110	126	129	131	130	112	109	104	113	101
3.	Maize	43	41	35	29	31	30	27	26	26	26	20	20	15	18	16	15
4.	Bajra	786	627	609	557	636	508	569	575	571	584	613	587	608	585	514	625
5.	Kh. Pulses	61	58	69	67	60	59	62	70	60	67	39	26	22	36	70	65
Total Kharif Foodgrains		**1647**	**1470**	**1504**	**1393**	**1552**	**1442**	**1564**	**1617**	**1617**	**1722**	**1888**	**1828**	**1808**	**1771**	**1619**	**1822**
B) RABI																	
6.	Wheat	1827	1857	1850	1806	1963	1994	1985	1972	2017	2057	2188	2317	2355	2300	2267	2303
7.	Gram	645	525	649	307	388	405	400	377	345	354	357	100	125	143	55	123
8.	Barley	64	51	51	56	53	38	50	40	35	42	36	35	44	30	30	30
9.	Rabi Pulses	22	20	25	15	14	13	13	15	12	12	13	10	8	10	7	8
Total rabi Foodgrains		**2558**	**2453**	**2575**	**2184**	**2418**	**2450**	**2448**	**2404**	**2409**	**2465**	**2594**	**2462**	**2532**	**2483**	**2359**	**2464**
Total Kh. & Rabi F/grains		**4205**	**3923**	**4079**	**3577**	**3970**	**3892**	**4012**	**4021**	**4026**	**4187**	**4482**	**4290**	**4340**	**4254**	**3978**	**4286**
C) COMMERCIAL CROPS																	
10.	Sugarcane	131	137	148	162	138	112	119	144	162	141	128	137	143	161	189	161
11.	Cotton	433	470	491	505	533	563	556	652	653	632	583	544	555	630	518	526
12.	Kh. Oilseeds	8	9	15	7	5	6	6	6	5	5	4	6	5	6	12	7
13.	Rabi Oilseed	383	437	474	638	562	576	579	575	613	556	498	450	409	537	607	614
14.	Sunflower				56	22	20	34	30	55	55	24	7	6	6	6	21
Total Oilseeds		**391**	**446**	**489**	**701**	**589**	**602**	**619**	**611**	**673**	**616**	**526**	**463**	**420**	**549**	**625**	**642**

CROPWISE PRODUCTION OF VARIOUS CROPS (Prod. In '000' tonnes/bales of 170 kgs. each)

Sr. No.	Crops	66-67	7-68	8-69	9-70	0-71	1-72	2-73	3-74	4-75	5-76	6-77	7-78	8-79	9-80	0-81	1-82	2-83	3-84	4-85	5-86	6-87	7-88
(A)	**Kharif**																						
1.	Rice	223	287	272	372	460	536	462	540	393	625	815	965	1228	941	1259	1252	1276	1332	1363	1633	1543	1077
2.	Jowar	49	58	25	54	57	45	55	55	38	35	37	21	26	39	48	31	28	20	44	28	41	15
3.	Maize	86	125	67	137	130	139	124	119	125	171	123	93	70	50	81	72	56	63	80	64	66	33
4.	Bajra	373	459	232	514	826	624	467	691	215	608	548	284	384	278	474	496	504	552	478	315	351	109
5.	Kh. Pulses	16	30	13	28	27	18	15	18	16	24	37	22	19	21	30	19	19	35	35	42	48	35
Total Kharif Foodgrains		**747**	**959**	**609**	**1105**	**1500**	**1362**	**1123**	**1423**	**787**	**1463**	**1560**	**1385**	**1727**	**1319**	**1892**	**1870**	**1883**	**2002**	**2000**	**2082**	**2049**	**1269**
(B) Rabi																							
6.	Wheat	1059	1438	1529	2147	2342	2402	2231	1811	1954	2428	2735	2845	3398	3295	3490	3686	4347	4458	4421	5260	5057	4861
7.	Gram	531	1267	421	1173	789	647	551	448	343	907	824	965	1044	313	455	310	282	315	319	625	413	66
8.	Barley	239	287	190	187	124	115	149	137	240	221	126	127	143	97	181	155	123	101	95	160	102	99
9.	Rabi Pulses	16	19	14	14	16	17	20	18	18	19	16	19	22	16	18	18	14	14	13	19	18	11
Total Rabi foodgrains		**1845**	**3011**	**2154**	**3521**	**3271**	**3181**	**2951**	**2414**	**2555**	**3575**	**3701**	**3956**	**4607**	**3721**	**4144**	4169	4766	4888	4848	6064	5590	5037
Total Kh. & Rabi F/grains		**2592**	**3970**	**2763**	**4626**	**4771**	**4543**	**4074**	**3837**	**3342**	**5038**	**5261**	**5341**	**6334**	**5040**	**6036**	**6039**	**6649**	**6890**	**6848**	**8146**	**7629**	**6302**
(C) Commercials																							
10.	Sugarcane (gur)	510	471	669	792	707	514	560	593	591	687	728	897	639	411	460	576	550	587	484	501	674	524
11.	Cotton	305	396	357	360	373	465	448	467	451	465	478	463	601	587	643	685	840	567	608	745	903	690
12.	Kh.oilseed	12	17	10	10	10	8	7	9	11	14	12	12	13	9	10	9	6	8	10	12	10	4
13.	Rabi oilseeds	80	103	33	78	89	90	99	53	137	65	66	87	81	66	178	141	111	157	296	276	216	327
Total oilseeds		**92**	**120**	**43**	**88**	**99**	**98**	**106**	**62**	**148**	**79**	**78**	**99**	**94**	**75**	**188**	**150**	**117**	**165**	**306**	**288**	**226**	**331**

CROPWISE PRODUCTION OF VARIOUS CROPS (Prod. In '000' tonnes/bales)

Sr. No.	Crops	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	2000-01	2001-02	2002-03	2003-04
(A) Kharif																	
1.	Rice	1443	1750	1834	1803	1880	2061	2230	1847	2463	2556	2432	2583 (3891)	2695	2726	2468	2793
2.	Jowar	40	27	65	29	46	25	29	30	29	32	25	22	23	22	22	26
3.	Maize	42	60	49	47	55	36	44	48	44	50	39	48	34	47	29	38
4.	Bajra	958	436	526	314	743	328	720	409	650	674	618	582	656	832	458	1004
5.	Kh. Pulses	55	50	57	61	57	57	67	60	58	59	20	12	13	18	36	38
Total kh. Foodgrains		**2538**	**2323**	**2531**	**2254**	**2781**	**2507**	**3090**	**2394**	**3244**	**3371**	**3134**	**3247**	**3421**	**3645**	**3013**	**3899**
B) Rabi																	
6.	Wheat	6225	5907	6436	6496	7108	7217	7297	7291	7826	7528	8568	9650	9669	9437	9188	9063
7.	Gram	604	367	469	202	260	403	440	381	276	309	294	58	80	122	41	100
8.	Barley	128	99	107	116	123	107	136	100	90	116	100	102	118	86	81	84
9.	Rabi Pulsees	14	13	16	10	9	9	9	12	11	8	9	8	6	9	7	7
Total rabi Foodgrains		6971	6386	7028	6824	7500	7736	7882	7784	8203	7961	8971	9818	9873	9654	9317	9254
Total Kh. & Rabi F/grains		**9509**	**8709**	**9559**	**9078**	**10281**	**10243**	**10972**	**10178**	**11447**	**11332**	**12105**	**13065**	**13294**	**13299**	**12330**	**13153**
(C) Commercial																	
10.	Sugarcanes	658	736	780	905	672	646	696	809	902	750	701	764	817	927	1065	934
11.	Cotton	846	1191	1155	1341	1411	1124	1371	1284	1507	1107	874	1304	1383	722	1038	1405
12.	Kh.Oilseed	4	5	4	3	2	3	3	3	3	3	2	3	2	2	6	6
13.	Rabi Oilseed	480	431	634	662	518	798	802	729	894	368	615	595	560	800	697	957
14.	Sunflower	-	-	-	97	38	35	57	51	88	85	36	7	9	9	9	31
Total Oilseeds		**484**	**436**	**638**	**762**	**558**	**836**	**862**	**783**	**985**	**456**	**653**	**605**	**571**	**811**	**712**	**994**

CROPWISE AVERAGE YIELD OF VARIOUS CROPS (Kgs/Hect.)

Sr. No.	Crops	66-67	67-68	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88
(A)	**Kharif**																						
1.	Rice	1161	1324	1186	1545	1697	1843	1594	1849	1425	2063	2470	2608	2680	1852	2601	2475	2604	2485	2447	2797	2457	2322
2.	Jowar	181	198	122	235	277	231	292	297	235	216	201	122	182	215	354	264	238	133	294	244	273	103
3.	Maize	988	1086	757	1232	1142	1215	1127	1009	1020	1230	1011	978	784	640	1134	1052	1002	1168	1307	1252	1249	839
4.	Bajra	418	519	266	552	939	708	517	723	233	605	572	321	440	341	544	582	646	656	639	487	453	232
5.	Kh. Pulses	410	385	406	475	500	462	455	450	444	662	860	786	806	880	811	613	760	795	745	894	1021	779
Total Kharif Foodgrains		**504**	**604**	**426**	**702**	**984**	**896**	**736**	**894**	**519**	**889**	**994**	**892**	**1088**	**846**	**1183**	**1187**	**1284**	**1230**	**1279**	**1443**	**1239**	**1096**
(B)	**Rabi**																						
6.	Wheat	1425	1710	1703	2111	2074	2041	1757	1539	1748	1980	2029	2093	2293	2231	2360	2357	2524	2499	2593	3094	2837	2808
7.	Gram	500	1092	729	1082	742	578	568	451	487	820	801	841	980	571	629	296	555	487	513	821	677	329
8.	Barley	1313	951	1151	1278	1150	1269	1038	891	1064	1258	1227	1312	1573	1202	1451	1288	1506	1306	1425	1802	1477	1564
9.	Rabi Pulses	308	328	304	304	372	362	370	383	430	463	444	475	465	571	487	514	519	518	542	514	506	611
Total Rabi foodgrains		**905**	**1275**	**1277**	**1536**	**1396**	**1307**	**1210**	**1018**	**1223**	**1403**	**1471**	**1496**	**1716**	**1744**	**1753**	**1500**	**2038**	**1928**	**2005**	**2344**	**2243**	**2502**
Total Kh. & Rabi F/grains		**736**	**1005**	**886**	**1197**	**1233**	**1149**	**1028**	**968**	**927**	**1201**	**1267**	**1273**	**1483**	**1365**	**1523**	**1391**	**1747**	**1655**	**1720**	**2021**	**1843**	**1990**
(C)	**Commercials**																						
10.	Sugarcane (gur)	3400	3891	4183	4689	4504	4512	4477	3983	3671	4323	4333	4552	3607	3117	4067	3975	3744	4450	4176	4864	5436	3691
11.	Cotton	283	279	286	315	329	327	296	316	310	311	334	298	357	317	346	354	360	239	353	367	404	281
12.	Kh.oilseed	857	1074	576	743	767	714	720	630	717	882	926	992	1039	978	833	736	579	691	-	750	714	551
13.	Rabi oilseeds	405	417	500	649	678	554	470	313	694	471	627	490	695	508	597	696	670	807	951	801	784	1005
Total oilseeds		**434**	**458**	**514**	**658**	**692**	**563**	**481**	**337**	**694**	**514**	**672**	**524**	**726**	**535**	**605**	**697**	**667**	**799**	**937**	**800**	**779**	**988**

CROPWISE AVERAGE YIELD OF VARIOUS CROPS (Kgs/Hect.)

Sr. No	Crop	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	2000-01	2001-02	2002-03	2003-04
A) Kharif																	
1.	Rice	2397	2730	2775	2831	2659	2730	2802	2225	2964	2797	2239 (3359	2385 (3579)	2557	2652	2724	2749
2.	Jowar	255	252	492	286	394	272	255	235	222	244	194	196	209	209	195	257
3.	Maize	983	1468	1414	1604	1772	1190	1620	1827	1691	1923	1950	2400	2267	2584	1833	2533
4.	Bajra	1219	695	864	563	1168	646	1265	713	1138	1154	1008	991	1079	1422	891	1606
5.	Kh. Pulses	908	862	826	910	956	966	1081	857	972	881	513	462	591	500	514	585
Total kh. Foodgrains		**1541**	**1580**	**1683**	**1618**	**1792**	**1738**	**1976**	**1481**	**2006**	**1958**	**1660**	**1776**	**1892**	**2058**	**1861**	**2140**
B)	**Rabi**																
6.	Wheat	3407	3181	3479	3597	3621	3619	3676	3697	3880	3660	3916	4165	4106	4103	4053	3935
7.	Gram	936	699	722	659	669	995	1099	1010	799	872	824	577	640	853	745	813
8.	Barley	1998	1941	2092	2074	2324	2816	2720	2507	2585	2762	2778	2914	2682	2880	2700	2790
9.	Rabi Pulses	643	650	640	667	662	692	730	800	917	667	692	800	750	900	1000	875
Total rabi Foodgrains		**2725**	**2603**	**2729**	**3125**	**3102**	**3158**	**3220**	**3238**	**3405**	**3230**	**3458**	**3988**	**3899**	**3888**	**3950**	**3756**
Total Kh. & Rabi F/grains		**2261**	**2220**	**2344**	**2538**	**2590**	**2632**	**2735**	**2531**	**2843**	**2706**	**2701**	**3045**	**3063**	**3126**	**3100**	**3069**
C) Commercial																	
10.	Sugarcane	5021	5375	5273	5587	4269	5768	5849	5616	5568	5319	5477	5577	5713	5758	5635	5802
11.	Cotton	332	431	400	451	450	339	419	335	392	298	255	408	424	195	340	454
12.	Kh. Oilseeds	500	550	267	429	400	500	500	500	600	600	500	500*	400	333	500	857
13.	Rabi Oilseed	1254	986	1338	1038	922	1386	1386	1269	1458	662	1235	1322	1369	1490	1148	1559
14.	Sunflower				1732	1728	1750	1676	1700	1600	1545	1500	1000	1500	1500	1500	1476
Total oil seeds		**1238**	**978**	**1305**	**1087**	**947**	**1389**	**1393**	**1282**	**1464**	**740**	**1241**	**1307**	**1360**	**1477**	**1139**	**1548**

In the present millennium Haryana will have to produce more food and other agricultural commodities under condition of diminishing per capita arable land and irrigation water resources and expanding biotic and abiotic stresses.

Success always has its costs and the green revolution has been no exception. Critics point to the environmental and health impacts due to increased use of chemical pesticides and fertilizers, which the green revolution entailed, and to the vulnerabilities which arose through the spread of monocultures in which indigenous land races have been replaced by the new high yielding varieties. The state is now faced with second generation problems of the first green revolution such as depletion of soil nutrients and water resources, ovation of salinity and water logging, resurgence of pests and diseases, increased environmental pollution, factor productivity decline etc. Intensive agriculture spread by the green revolution actually let to environmental problem: (1) Excessive and untimely use of irrigation water; (2) Replacement of a rich diversity of traditional varieties with fewer high yielding varieties, and (3) In appropriate use of fertilizers and pesticides. The higher production level let to the diversion of more area from crops like oilseeds, pulses and coarse cereals to major cereals such as rice and wheat. However, Haryana is well placed at national level as is evident from the following table:

Area Production and Yield of Foodgrains During 2001-02 in Respect of Major Foodgrains Producing States Alongwith Coverage Under Irrigation.

Area: Million Hectares
Production: Million Tonnes
Yield: Kg/Hectare

State	2001-02					
	Area	% of total area	Production	% of total Production	Cumulative % of total production	Yield
1	2	3	4	5	6	7
Uttar Pradesh	20.02	16.42	43.20	20.37	20.37	2157
Punjab	6.16	5.05	24.89	11.74	32.11	4040
West Bengal	6.81	5.58	16.50	7.78	39.89	2424
Andhra Pradesh	7.04	5.77	14.84	7.00	46.89	2106
Rajasthan	12.72	10.43	13.98	6.59	53.48	1099

Haryana	4.25	3.49	13.30	6.27	59.76	3127
Madhya Pradesh	11.22	9.20	13.06	6.16	65.92	1164
Bihar	7.06	5.79	11.85	5.59	71.50	1679
Maharastra	12.80	10.50	11.19	5.28	76.78	874
Karnataka	7.17	5.88	8.77	4.14	80.92	1224
Tamil Nadu	3.79	3.11	8.47	4.00	84.91	2233
Orissa	5.42	4.45	7.56	3.56	88.48	1393
Chattisgarh	5.03	4.12	5.81	2.74	91.22	1156
Gujarat	3.47	2.84	4.90	2.31	93.53	1414
Assam	2.75	2.25	4.02	1.90	95.42	1465
Jharkhand	1.84	1.51	2.01	0.95	96.36	1094
Uttaranchal	0.98	0.80	1.71	0.81	97.18	1742
Others	3.40	2.79	5.98	2.82	100.00	@
All India	121.91	100.00	212.03	100.00		1739

@- Since Area/Production is low, yield rate is not worked out.

Note : States have been arranged in descending order of percentage share of production during 2001-02.

Prophets of doom have again started giving warnings regarding future food scarcity. Well, above statistics reveal that Haryana stands good at national level but all is not well within the state. A big contour comprising sizeable parts of Sirsa, Hisar, Bhiwani, Mahinderagarh, Rohtak and Gurgaon districts of the state falls under dry land farming. The problem of agriculture in this contour is two-fold. There is, first, the problem of severe limitation of water supply for irrigation purposes and second, that of poor and deficient soil. The annual rainfall is relatively low and is concentrated in the monsoon season of two to three months. There is a surplus of water in these months for crop production if the rainfall is normal but it is allowed to go waste at that time. In dry months whenirrigation is needed, water is not available with the result that plant growth is stunted and crop yields remain low. Ground water in these areas usually lies at a greater depth and lifting of it is neither easy nor economically viable, moreover, water is brackish-not fit for irrigation. Thus these dry lands/rainfed areas are caught in a vicious circle of high risk, low investment, poor technology and low production. They are the regions where the maximum concentration of rural poor and unemployment is

noticed. Tackling the agricultural problem of the regions means tackling in a large measure, the problem of rural poverty and unemployment as well.

Dry land farming in the dry zone of state is of great economic importance, despite all its weakness. Almost entire quantity of pulses, coarse grains major portion of oil seeds and cotton are grown in this area. However, high priority is given for development of dry land farming in the state with a view to raising productivity and achieving the important objectivities of reduction of poverty, unemployment and regional disparities. To minimize the risk to farmers and to provide them with area specific-technological packages, inputs and services, special programmes viz. Desert Development Programme (DDP) and Drought Prone Area Programme (D.P.A.P.) were launched in the state. These programmes aimed at preventing deterioration of desertic conditions and controlling drought through afforestation, soil and moisture conservation, management of water resources, livestock and dairy development including development of pasture and fodder resources. Special measures were undertaken for soil and moisture conservation, land shaping, bunding, construction of water harvesting and drainage structures, increased use of improved/drought resistance seeds, and adoption of carefully worked out cropping patterns. Serious research efforts at scientific water and soil management were made. For ensuring better yields in the dry land areas, the dry land research centre located at Bawal in Rewari district is doing good role.

There are thus technologies and scientific knowledge already available to make a break through in increase of yield and total crop production in rainfed and dry land areas. There are also some success stories available to farmers for reaping rich harvests from poor soils and working under highly adverse agro.-climatic conditions by adopting scientific methods of cultivation and new technologies. The field agencies should therefore, extend and disseminate these scientific developments to the farmers to raise the farm produce in a vast area of 20673 square kilometres i.e. in 47 per cent of the total state area. These measurements will lead us in arresting the frequent drought conditions and making the dry land farming a more viable proposition. This is the area, which is suitable for second green revolution. This millennium is going to be the era of coarse grains.

Cropping Pattern

There have been very significant changes in cropping pattern which have a strong bearing on production, use and demand of inputs and hence the economy

of farmers and the State. Pearl millet or bajra was a major rainy season (Kharif) crop of Haryana in 1965-66, occupying 46% of the cultivated area. It was followed by rice (13%), sorghum or jowar (12%) and cotton (11%). Sugarcane, maize and kharif pulses occupied only 8%, 6%, and 3% of the cultivated area respectively. This pattern was indicative that the cropping pattern mostly conformed to the semi-arid characteristics of the region. However, by 1995-96 the cropping pattern has changed substantially. Rice and pearl millet are now the major crops occupying 34% and 27% of the kharif area, respectively, followed by cotton (24%), sugarcane (6%), sorghum (5%), maize (1%) and pulses (3%). Thus, increase in area of rice, a high water consuming crop, has occurred at the cost of pearl millet, sorghum and maize, the low water consuming crops.

The cropping in winter season (rabi) has also changed substantially. Wheat occupied 43%, Chickpea 42%, barley 7% and other pulses 2% in the sixties. Today, chickpea, or gram area has declined to 14% and barley to 2% and other pulses have almost disappeared. All the area released from these crops has largely gone to wheat, which now occupies 64% area in rabi. Mustard has also shown a consistent increase.

Major cropping pattern in various districts of Haryana under irrigated and Rainfed environment is given below :-

MAJOR CROPPING PATTERNS IN VARIOUS DISTRICTS OF HARYANA UNDER IRRIGATED AND RAINFED ENVIRONMENTS (AS INDICATED BY FARMERS, EXTENSION WORKERS AND OTHER DOCUMENTS)- PROPOSED CHANGES- THEREON.

District	Irrigated Area ('000' hectares)	Irrigated condition	Rainfed condition
1	2	3	4
Ambala	63.0	Rice-wheat-summer pulses Maize-Wheat	
Yamunanagar	73.6	Green Manure-Rice-Wheat	
Kurukshetra	96.5	Green Manure-Rice-Wheat	
Kaithal	96.2	Green Manure-Rice-Wheat Cotton-Wheat	Pearl millet-Wheat
Karnal	97.7	Rice-Wheat-Summer pulses Sugarcane-Wheat	

Panipat	97.5	Rice-Wheat Sugarcane-Wheat	
Sonipat	94.4	Green Manure-Rice-Wheat Sugarcane-Wheat	Sorghum-Wheat
Rohtak	69.5	Sugarcane-Wheat Cotton-Wheat Rice-Wheat	Pearl millet-Chickpea Sorghum-Chickpea
Faridabad	69.1	Rice-Wheat/Rice-Pulses Sugarcane-Wheat	Pearl millet-Wheat Sorghum-Wheat Sorghum-Mustard
Gurgaon	47.1	-	Pearl millet-Mustard Sorghum-Wheat
Rewari	47.2	-	Pearl millet-Mustard
Mahenderagarh	29.3	Cotton-Wheat	Pearl millet-Mustard Pearl millet-Chickpea
Bhiwani	32.9	Cotton-Wheat	Pearl millet-Mustard Pearl millet-Chickpea
Sirsa	77.5	Cotton-Wheat Green Manure-Wheat	Pearl millet-Mustard
Jind	84.6	Rice-Wheat Cotton-Wheat Sugarcane-Wheat	Pearl millet-Mustard
Hisar	81.4	Cotton-Wheat Rice-Wheat	Pearl millet-Mustard Moong-Mustard

Crop Diversification

To motivate farmers for changing the existing cropping pattern and to grow alternate crops needs some sort of incentives to protect the income of the farmers. A proposal to this effect has been submitted to Government of India for providing funds for compensating the farmers for growing alternate crops. A sum of Rs.480 crore for Kharif crops and Rs.480 crore for Rabi crops, totaling to Rs.960 crore has been demanded from Government of India.

The Department has prepared an action plan to diversify the existing cropping pattern in the state over a period of 3 years i.e. 2003 to 2005. The area under paddy and wheat would be reduced by 1.00 lakh hects each year of the action plan, the details are as under: -

Kharif (Area in lakh hects.)						Rabi (Area in lakh hects.)			
Sr. No.	**Crop**	**2003**	**2004**	**2005**		**Crop**	**2003**	**2004**	**2005**
1	Kharif Pulses	0.50	1.00	1.50		Gram	0.20	0.40	0.60
2	Maize	0.20	0.40	0.60		Rapeseed mustard	0.20	0.20	0.45
3	Cotton	0.10	0.23	0.38		Winter Maize	0.10	0.20	0.30
4	Kharif Oilseeds	0.10	0.20	0.30		Barley	0.10	0.30	0.40
5	Sugarcane	0.05	0.10	0.15		Sugarcane	0.05	0.10	0.15
6	Fruits & Vegetables	0.05	0.07	0.07		Fruits & Vegetables	0.10	0.20	0.30
7						Sunflower	0.15	0.40	0.55
8						Lentil	0.10	0.25	0.35
	Total	**1.00**	**2.00**	**3.00**		**Total**	**1.00**	**2.00**	**3.00**

Trainings and awareness camps are being organized for creating awareness among farmers. The seeds of alternate crops have been stocked and programme for laying demonstrations on improved production technology have been chalked out for each district.

Crop Insurance

The Haryana Government implemented the crop insurance scheme known as National Agriculture Insurance Scheme (NAIS) from Kharif-2004 season for the crops of maize, bajra, cotton and arhar. This is a Government of India Scheme introduced from the rabi season of 1999-2000 and being implemented by 23 states and union territories in the country. The crops taken up under the insurance scheme in Haryana are the high risk crops.

The Objectives of the Scheme are:

(i) The provide insurance coverage and financial support to the farmers in the event of failure of any of the notified crop as a result of natural calamities, pests & diseases.

(ii) To encourage the farmers to adopt progressive farming practices, high value in-puts and higher technology in agriculture.

(iii) To help stabilize farm incomes, particularly in disaster years.

Farmers to be covered: -

The scheme is compulsory for loanee farmers and optional for non-loanee farmers.

Premium Rates of Different Crops: -

The information pertaining to indemnity level, some insured, premium rate and premium amount in rupees per hectare/acre is given below : -

Crop	Indemnity Level (in %)	Sum Insured at normal coverage (Rs./ha)	Premium rate applicable on (Col. 3) (in %)	Sum insured maximum coverage (Rs./ha.)	Premium rate applicable on (Col. 5-col. 3) (in%)	Premium amount	
						Rs./hect.	Rs./Acre
1	2	3	4	5	6	7	8
Maize	80	8991	2.5	16858	5.75	225	91
Bajra	80	4837	3.5	9070	10.90	169	68
Cotton	60	9966	4.05	24914	4.05	404	163
Arhar	90	10816	1.45	18026	1.45	157	64
Gram	80	8134	2.0	15246	7.85	163	66
Mustard	80	17632	2.0	33056	4.90	353	143

Progress of the scheme during kharif 2004

The blocks for insurance have been selected on the basis of the area under a particular crop identified for insurance. The total number of blocks/group of blocks covered under cotton crop are 39, under maize 8, under bajra 81 and under arhar 14, till end of August 2004, the total number of farmers covered under insurance scheme was 1,50,702 and sum insured was 130.01 crore.

AGRICULTURAL MARKETING

Marketing wings deals with development aspects of marketing of agricultural produce in the state. Under marketing development activities the Agricultural Development Officers (Marketing) and other extension staff working in the field have taken up the marketing extension work to educate the farmers about improved marketing practices, so that they are aware to sell their agricultural produce at proper time and place to get a better price. Besides the market data/information pertaining to whole-sale & retail prices of various agricultural commodities, marketable surplus and day today mandi arrivals as also price trends are collected from selected mandis of the state and these information are daily transmitted through telephone and NICNET for dissemination for the benefit of farmers and consumers through All India Radio in Krishi Jagat Programme & T.V. Doordarshan as well as supplied to various quarters in Government of India and the State Government for their use. The Marketing Wing is also entrusted with the work of the Haryana Cotton Ginning & Pressing Factories Act, 1992 (revised in 1993). The cases of Certificate of Authorization for Agmark Grading of decentralized agricultural commodities under APGM Act, 1937 are also processed/dealt with by the Marketing Wing of the Department before making recommendations to the Directorate of Marketing & Inspection, Government of India. Following Plan and non-plan schemes are in operation in the Marketing Section: -

1. Marketing Facilities- Scheme for Marketing Development Non-plan Scheme (Permanent).

2. Scheme for the Grading of Agricultural Produce in Haryana (Non-plan).

3. Scheme for setting up of the Agmark Laboratory and farmers Level Grading Centres in Haryana (Non-plan).

4. Scheme for Improvement of Marketing Intelligence, Survey and Publication for the benefit of the farmers (Non-plan).

The main activities being carried out under the above schemes are given below:

(i) Collection and Dissemination of Marketing Information

The daily whole-sale model rates of important Agricultural commodities are being collected by field staff from 26 selected mandis viz. Hisar, Ambala,

Karnal, Kurukshetra, Kaithal, Bhiwani, Sirsa, Rohtak, Sonipat, Jind, Panipat, Rewari, Hansi, Jagadhari, Gurgaon, Narwana, Fatehabad, Narnaul, Dabwali, Kalanwali,Tohana, Ladwa, Uklana, Palwal, Shahabad,Charkhi Dadri and communicated through telephone for broadcasting at All India Radio Station, New Delhi, Rohtak, Kurukshetra and T.V. Doordarshan Kisan Channel for Hisar for the benefit of farming community. The farmers are appraised of the day to day market trend, so that they could sell their produce at an appropriate time and place to get better prices of their agricultural produce.

(ii) Grading at Producers Level

Keeping in view the recommendations of Central Government a pilot scheme for introducing the grading of agricultural produce before sale was implemented in 1967. Under the scheme it is envisaged that the farmers are educated through extension methods to bring their agricultural produce after proper grading and clearing for sale in the mandis and also appraisal of them about the improved marketing practices is done so that they are above to get better price of their produce in mandi.

(iii) Agmark Laboratories

The marketing wings have set up Agmark Laboratories at Fatehabad, Sonipat, Hisar, Jagadhari, Karnal, Ambala and Rohtak with the approval of Agricultural Marketing Adviser, Directorate of Marketing and Inspection, Government of India and the concerned officers are trained in the science. Analysis work in these laboratories to take up Agmark Grading work of mustard oil, wheat flour, honey and spices. They are authorized by Agricultural Marketing Adviser, Directorate of Marketing and Inspection, Government of India.

The role played by the public sector undertakings in the development of agriculture is very encouraging which has been described in the next pages.

Haryana State Federation of Cooperative Sugar Mills

The Haryana State Federation of Cooperative Sugar Mills Ltd. was established in 1966 with the objectives to improve the performance of the existing Cooperative Sugar Mills and to establish new Cooperative Sugar Mills in the State. A Cooperative Society was registered as the Haryana State Sugar Federation Ltd. in 1966.

OBJECTIVES: -

The objectives of the Sugar Federation are as following : -

(i) To establish new cooperative sugar mills in the state.

(ii) To protect the interest of the Sugarcane growers and to improve their financial position.

(iii) To increase payment of remunerative price of cane to the farmers of the state.

(iv) To make available sufficient sugar to the people of the state.

(v) To accelerate industrial growth in the state at reasonable rates.

(vi) To provide employment to the people.

ACTIVITIES: -

In order to achieve above mentioned objectives, following activities are being taken by Sugar Federation: -

1. Establishing new cooperative sugar mills in the state.
2. Advise regarding expansion of capacity of mills.
3. Arrangements of funds from Central Government, state Government and financial Institutions.
4. Representation of cooperative sugar mills at various levels.
5. Preparation of cane development plans to improve productivity of sugarcane and to improve sugar recovery from cane.
6. Rendering advised on cane development, technical/processing matters and financial matter to the mills.
7. Providing technical assistance regarding purchases of machinery and spare parts etc.
8. Assisting the mills in the selection of technical officers/officials of the mills.
9. Taking steps to sort-out the problems of the mills.

When Haryana came into existence the area coverage under sugarcane was around 1.50 lakhs hectares with productivity of 34 tonnes (cane) per hectare. This productivity level has increased to the tune of 58.02 tonnes (cane) per hectare during the year 2003-04.

CRUSHING CAPACITY

At present there are 15 sugar mills in operation having crushing capacity of 45050 TCD. Out of these 12 sugar mills are in cooperative sector and remaining 3 (Yamunanagar, Bhadson and Naraingarh) are in Private Sector.)

SUGARCANE PRODUCTION

The sugarcane productivity has shown increasing trend during the last few years in the state. On the basis of quick survey conducted by sugar mills, as well as staff of Sugarcane Wing of the Department of Agriculture, the total area under sugarcane during 2004-05 has been estimated to about 1.35 lakhs hectares and the total production is estimated to be 810 lakh quintal.

CANE CRUSHING AND SUGAR PRODUCTION

During the season 2003-04 a total quantity of 556.05 lakhs quintals of sugarcane was crushed by different sugar mills of the state, producing 58.22 lakh quintals of sugar with an average recovery of 10.47 percent sugar.

KHANDSARI & GUR UNITS

Khandsari and gur units are granted and renewed licenses by the Cane Commissioner Haryana under Haryana Khandsari Sugar Manufacturers Licensing Order, 1972 and Haryana Gur Manufacturers Licensing Order, 1972 respectively. There were 29 existing khandsari units in the state whereas number of gur licenses was 356 during the year 2003-04.

CENTRALLY SPONSORED SCHEME (MACRO MANAGEMENT OF AGRICULTURE MODE)

Till the year 1999-2000, the work of development of sugarcane crop in the area of sugar mills of the state was carried our under the scheme Sustainable Development of Sugarcane Based Cropping System (SUBACS). However, from the year 2000-01, this scheme was merged with the scheme named Macro

Management of Agriculture Mode. This component of sugarcane development has been kept under this newly formed scheme. The object of the scheme is to ensure the development of sugarcane in the assigned area of the sugar mills (in 15 sugar mills of the state). Lot of development efforts are required for increasing the productivity of sugarcane per unit area, otherwise, it will not be possible for the mills to get sufficient cane for crushing. The productivity of sugarcane crop is to be increased by replacement of traditional varieties with thee improved ones. Any slackness in the development of sugarcane in the state means count for under utilization of crushing capacity of sugar mills, which would increase the cost of production vis-à-vis financial losses to the sugar mills.

The details of performance of sugar mills for the year 2003-04 are given below : -

Season 2003-04

Sr. No.	**Name of the Sugar Mill**	**Crushing capacity in TCD (Tonnes Crushed Daily)**
	COOPERATIVE SECTOR	
1	Karnal	2500
2	Panipat	1800
3	Sonipat	1250
4	Rohtak	1750
5	Shahabad	3500
6	Jind	1250
7	Palwal	1250
8	Kaithal	2500
9	Meham	2500
10	Bhuna	2500
11.	Gohana	2500
12.	Sirsa	1750

	PRIVATE SECTOR	
13	Yamunanagar	12500
14	Bhadson	5000
15	Naraingarh	2500
	Total	45050

The following statement reflects the sugarcane development pertaining to last ten years

Sr. No.	Year	Area (000 hects.)	Av. yield (Gur) Kg./Hect.	Production (lakh quintals)
1	1995-96	144	5616	810
2	1996-97	162	5568	902
3	1997-98	141	5319	750
4	1998-99	125	5504	688
5	1999-2000	133	5554	739
6	2000-2001	143	5713	817
7	2001-2002	162	5761	933
8	2002-2003	190	5632	1070
9	2003-2004	161	5803	934
10	2004-05 (estimated)	135	6000	810

The tables A, B, C and D given below reveal the other achievements of state sugar industry.

TABLE-A

COMPONENT WISE PHYSICAL AND FINANCIAL TARGETS AND ACHIEVEMENTS MADE DURING THE YEAR 2003-04 .

Sr. No.	Components	Units	2003-04
1	**Demonstrations**		
(A)	Field Demonstrations	Nos.	150
(B)	IPM Demonstrations	Nos.	200
(C)	IPM Village	Nos.	-
2	**Trainings**		
	(A) State level	Nos.	2
	(B) Farmers level	Nos.	100
3	**Agricultural Implements**		
	(A) Tractor operated	Nos.	100
	(B) Manual operated P.P.equipments	Nos.	10850
4.	**Heat Treatment Plants**	Nos.	6
5	**Seed Production**	Hect.	312
6	**Multiple Ratooning**	Hect,	-
7	**Rain Gun spray**	Nos.	-
8	**Bio Control Lab.**	Nos.	-
9	**Tissue Culture Lab.**	Nos.	-

TABLE-B

SUGAR MILL WISE FINAL INFORMATION REGARDING DATE OF START, CLOSE, CANE CRUSHED, SUGAR PRODUCED AND RECOVERY % ETC. FOR THE SEASON 2003-2004.

(Quantity in lakh quintals)

Sr. No.	Name of Mill	Date of start	Date of close	Total working days	Cane crushed (in lakh quintals)	Sugar made (in lakh quintals)	Recovery % of sugar
	Coop. Sector						
1.	Panipat	22.11.2003	04.04.2004	135	23.43	2.37	10.11
2.	Rohtak	27.11.2003	01.04.2004	127	22.84	2.36	10.32
3.	Karnal	26.11.2003	26.04.2004	152	34.29	3.53	10.29
4.	Sonipat	21.11.2003	02.04.2004	133	23.82	2.54	10.66
5.	Shahabad	18.11.2003	27.04.2004	161	57.81	6.13	10.60
6.	Jind	20.11.2003	28.03.2004	130	22.83	2.35	10.29
7.	Palwal	24.11.2003	31.03.2004	129	22.13	2.19	9.92

8.	Meham	25.11.2003	28.03.2004	124	30.23	3.13	10.36
9.	Kaithal	04.12.2003	09.03.2004	98	21.87	2.12	9.70
10.	Bhuna	25.12.2003	17.02.2004	55	10.80	0.93	8.62
11.	Sirsa	28.12.2003	05.02.2004	40	4.81	0.45	9.43
12.	Gohana	25.11.2003	03.04.2004	131	31.76	3.25	10.24
	Total			**118**	**306.62**	**31.35**	**10.22**
	Private Sector						
13.	Yamunanagar	21.11.2003	22.04.2004	153	185.34	20.37	10.99
14.	Bhadson	09.12.2003	27.04.2004	141	39.48	4.10	10.40
15.	Naraingarh	22.11.2003	28.03.2004	127	24.61	2.40	9.75
	Total			**140**	**249.43**	**26.87**	**10.77**
	G.Total			**122**	**556.05**	**58.22**	**10.47**

TABLE-C

STATEMENT SHOWING QUANTITY OF CANE CRUSHED, SUGAR PRODUCED AND RECOVERY % OF DIFFERENT

SUGAR MILLS IN HARYANA STATE

(Quantity in lakh quintals)

Sr. No.	Name of Mill	Date of start		Date of close		Quantity of cane crushed		Quantity of Sugar Produced		Recovery %	
	Coop. Sector	2001-02	2002.03	2001-02	2002-03	2001.02	2002.03	2001.02	2002-03	2001-02	2002-03
1.	Panipat	18.11.2001	18.11.2002	28.4.2002	19.4.2003	25.69	25.77	2.44	2.38	9.48	9.24
2.	Rohtak	.23.11.2001	21.11.2002	16.4.2002	23.4.2003	29.66	27.63	2.98	2.74	10.04	9.91
3.	Karnal	20.11.2001	27.11.2002	20.5.2002	18.5.2003	41.07	38.79	4.05	3.88	9.87	10.00
4.	Sonipat	11.11.2001	20.11.2002	24.4.2002	23.4.2003	26.13	24.60	2.55	2.45	9.75	9.98
5.	Shahabad	20.11.2001	21.11.2002	21.5.2002	31.5.2003	62.44	66.38	6.27	6.71	10.05	10.11

6.	Jind	8.11.2001	21.11.2002	26.4.2002	20.4.2003	30.69	25.58	2.88	2.53	9.40	9.91
7.	Palwal	7.11.2001	20.11.2002	26.4.2002	10.4.2003	29.10	22.82	2.87	2.35	9.85	10.32
8.	Meham	17.11.2001	21.11.2002	22.4.2002	5.5.2003	33.97	34.64	3.21	3.40	9.44	9.81
9.	Kaithal	22.11.2001	29.11.2002	26.4.2002	15.4.2003	35.67	31.81	3.39	3.06	9.51	9.63
10.	Bhuna	30.11.2001	16.12.2002	9.4.2002	1.4.2003	28.32	20.45	2.37	1.85	8.36	9.04
11.	Sirsa	2.1.2002	22.12.2002	8.3.2002	17.3.2003	9.45	14.53	0.84	1.29	8.90	8.92
12.	Gohana	17.2.2002	25.11.2002	18.4.2002	12.4.2003	9.20	28.53	0.90	2.74	9.80	9.61
	Total					**361.39**	**361.52**	**34.75**	**35.38**	**9.62**	**9.79**
	Private Sector										
13.	Yamuna Nagar	20.11.2001	7.12.2002	16.5.2002	31.5.2003	202.61	203.23	21.56	22.00	10.64	10.82
14.	Bhadson	15.12.2001	1.12.2002	10.5.2002	26.5.2003	30.10	48.32	2.86	4.71	9.50	9.75
15.	Naraingarh	27.11.2001	16.3.2003	11.4.2002	18.5.2003	32.68	14.51	3.22	1.45	9.87	10.01
	Total					**265.39**	**266.06**	**27.64**	**28.16**	**10.41**	**10.58**
	G.Total					**626.78**	**627.58**	**62.39**	**63.54**	**9. 95**	**10.12**

TABLE-D

SUGARCANE PAYMENT POSITION OF SUGAR MILLS OF HARYANA FOR THE SEASON 2001-2002 (AS ON 2-09-2002)

Sr. No.	Name of Sugar Mill	Cane purchased (Lakh quintals)	Total Value of Cane Due	Paid	Balance	Date of report
	Coop.Sector			**Rs.in Crores**		
1.	Panipat	25.71	27.60	27.60	0.00	30.08.2002
2.	Rohtak	29.81	31.88	31.88	0.00	-do-
3.	Karnal	41.12	44.08	44.08	0.00	-do-
4.	Sonipat	26.22	27.93	27.93	0.00	-do-
5.	Shahabad	62.54	66.58	66.58	0.00	-do-
6.	Jind	30.78	33.02	33.02	0.00	-do-
7.	Palwal	29.80	31.50	31.50	0.00	-do-
8.	Meham	34.06	36.30	36.30	0.00	-do-
9.	Kaithal	35.72	37.63	37.63	0.00	-do-
10.	Bhuna	28.33	29.75	29.75	0.00	-do-
11.	Sirsa	9.45	10.84	10.84	0.00	-do-
12.	Gohana	9.20	9.75	9.75	0.00	-do-
	Total	**362.74**	**386.86**	**386.86**	**0.00**	
	Private Sector					
13.	Yamunanagar	202.88	208.11	208.11	4.71	1.09.2002
14.	Naraingarh	32.68	35.00(est.)	35.00(est.)	15.73	3.8.2002
15.	Bhadson	30.10	31.73	31.73	5.20	1.09.2002
	Total	**265.66**	**274.83**	**274.83**	**25.64**	
	G.Total	**628.40**	**661.70**	**661.70**	**25.64**	

(v) Production of sufficient sugar in the state

The production of sugar by the Cooperative Sugar Mills in the state has increased from 2.40 lakh quintals in 1996 to 35.40 lakh quintals in 2003.

(vi) Generation of Employment Opportunities

The Cooperative sugar mills are providing direct and indirect employment to a large number of people. The direct employment has been increased from1600 in 1966 to 9300 in 2003-04. In addition about 30,000 people are getting indirect employment on account of existence of Cooperative sugar mills in the state.

SPECIAL ACIEVEMENTS

(i) National Level Awards including Best Cooperative Sugar Factory at National Level.

(ii) Production of high quality sugarcane.

(iii) Publication of Ganna Vikas Patrika.

(iv) Co-generation of power in the cooperative sugar mills.

(v) Preparation and supply of bio-compost to the farmers.

Facilities being given to the farmers

The following facilities are being given by the cooperative sugar mills to the farmers to improve their income: -

i) Heat treatment of cane seeds free of cost.

ii) Supply of seed of improved cane varieties to the farmers after taking from various Sugarcane Research Centres.

iii) Payment of subsidy @ Rs.300/- to 500/- per acre for raising of seed nurseries.

iv) Payment of interest free loan for purchase of sugarcane seed.

v) Payment of transportation subsidy for seed of improved varieties of sugarcane.

vi) Supply of seedlings of improved cane varieties raised through "Tissue Culture".

vii) Supply of pesticides at subsidy for control of various pests and diseases.

viii) Supply of parasites free of cost to encourage biological control of sugarcane pests.

ix) Supply of fertilizers on subsidy and on loan to encourage early varieties.

x) Supply of improved agricultural implementation at subsidized cost..

xi) Imparting training to the cane growers regarding new technologies of sugarcane cultivation.

The Haryana Agro Industries Corporation Limited

The Haryana Agro Industries Corporation Limited is a Public Sector Undertaking, which was set up with the primary objective of providing service to the farmers in the state of Haryana. It was incorporated under the Indian Companies Act, 1956 in the year 1967. It has an authorized share capital of Rs.1000.00 lakh against which its paid up capital is Rs. 414.04 lakh. The Central Government's share is Rs.160.21 lakh and the State Government's share is Rs. 253.83 lakh.

The corporation is functioning with the following objection: -

(1) To undertake, assist, aid, finance and promote agro-industries, such as poultry, dairy, land development and seed related activities and other agro based industries and manufacture agriculture implements, agricultural machinery and other materials and equipments required for these industries in Haryana and in India and to sell the products of these industries.

(2) To promote or conduct any agricultural, commercial, or industrial enterprise, establishment company or concern.

(3) To acquire, purchase, give or sell implements, machinery, equipment, appliances, tools etc., either on hire-purchase system or on payment by installment as may be of interest to the company.

The corporation has been engaged in trading activities such as sale of seed, fertilizers, pesticides, tractors and other agricultural machinery like diesel engines, electric motors, mono-block pump sets, tyres/tubes, batteries and spray pumps etc. at economical prices to the farming community besides ensuring their genuineness. The corporation has a network of 17 Farmers Service Centres and about 12 Sale Centres scattered throughout the state of Haryana at Ambala, Kurukshetra, Panipat, Yamuna Nagar, Karnal, Sonipat, Rohtak, Hisar, Jind, Kaithal, Gurgaon, Palwal, Narnaul, Sirsa, Fatehabad, Rewari and Bhiwani. The corporation has also a network of over 150 dealers in the district/block levels. The main trading activities of the corporation are as under: -

(a) Fertilizer:

The corporation is engaged in the business of fertilizer like, DAP, UREA, SSP, CAN, NPK etc. The entire sale of fertilizer is effected from our Farmer Service Centres, Sale Centres and through the dealers' network. The corporation has sold of 376467 MT fertilizer amounting to Rs.22929.83 lakh from July 1999 to May, 2004.

(b) Tractors

The corporation provides tractors of all makes to the farmers of Haryana at reasonable rates. The corporation has sold the tractors amounting to Rs.1355.30 lakh from July 1999 to May, 2004.

(c) Sprinkler Irrigation System

The corporation is supplying irrigation sprinkler sets to the farmers at 40% to 60% cheaper rates. A subsidy of Rs.7000/- or 50% whichever is less, is available through Land Development Banks if purchase of sets is financed through bank loans. In case of women, SC & ST farmers, a subsidy of 75% or Rs.10,000/- whichever is less is given, if purchase is through bank loans.

(d) Bee Keeping

The corporation is recognized as State Designated Agency by the Department of Agriculture and Cooperation, Ministry of Agriculture, Goverment of India for development Bee Keeping for improving crop productivity. Under this scheme, the corporation imparts training to be-keepers, farmers, unemployed youth and SC/ST aspirants free of cost and provde free boarding & lodging during training. The trained bee-keepers are supplied bee colonies and bee hives of good quality on 50% subsidy by the corporation through its registered bee breeders. The corporation also bears the migration cost of bee colonies. Since July, 1999 to May, 2004, the corporation has imparted the training on bee-keeping to 448 beekeepers and also has supplied 7090 beehives and 7215 bee colonies to 362 bee keepers on subsidy.

ii) THE CORPORATION HAS 3 MANUFACTURING PLANTS IN HARYANA AS DETAILED BELOW :

(a) FERTILIZERS & CHEMICLALS PLANT, SHAHABAD

This plant was set up in 1975 for granulating NPK grade fertilizers and manufacturing a wide range of weedicides, pesticides and insecticides under the brand name of 'HARAGRO'. The plant manufactured and sold the insecticides/NPK amounting to Rs.668.71 lakh from July 1999 to May, 2004.

(b) CATTLE FEED PLANT, JIND

This plant was set up in the year 1975 for the production for cattle feed and other allied products with capacity of 30,000 MT per annum. The plant manufactured 4.13 lakh qtls. of cattle feed and sold of Rs.2068.83 lakh from July, 1999 to May, 2004.

(c) AGRO ENGINEERING WORKS, NILOKHERI

This plant was also set up in the year 1975 for manufacturing of most modern agricultural implements, tractor trolleys, water tankers, bus bodies and threshers. The workshop manufactured the implements of Rs.432.441 lakh and sale is to the tune of Rs.405.52 lakh from July, 1999 to May, 2004.

(iii) WHEAT/PADDY

The corporation was approved as a procurement agency for wheat by the State Government in the year 1988. Initially the corporation was allowed 8% share in the wheat procurement of the state which was increased to 10% in 1989 but subsequently reduced to 9% in 1993. In case of paddy, the corporation has a share of 9%. The corporation is also approved as a procurement agency for paddy for State Government with a share of 9% and bajra. The corporation procured 30879 MT bajra in Kharif 2003. The

corporation also procured the following quantity of wheat & paddy from July, 1999 to May, 2004.

(In lakh metre tones)

Year	Wheat	Paddy
1999-2000	2.95	0.08
2000-2001	3.90	1.33
2001-2002	6.83.	1.42
2002-2003	5.60.	1.83
2003-2004	4.85	0.77
2004-2005	4.16.	---

(iv) WAREHOUSING

The corporation has constructed godown of a capacity of 55,000 MT for storage of good grains at Shahabad (25,000MT), Jind (10,000 MT) and Murthal (5,000 MT). These godown are rented out to FCI under 7 years guarantee scheme. Besides this capacity the corporation has also constructed godowns of 63,00 MT (5,000 MT at Shahabad and 1,300 MT at Pipli) under state plan.

(v) PETROL PUMPS

IOC has renovated our petrol pump at Gurgaon under lease hire scheme. The Gurgaon petrol pump has sold HSD/Petrol amounting to Rs.38.10 crore since July 1999 to May, 2004. The corporation is setting up 10 of petrol pumps at Sonipat, Pipli, Nilokheri,Shahabad, Hisar, Barwala, Panipat, Kaithal, Ambala and Yamuna Nagar.

The Haryana Agro Industries Corporation Limited has also set up a HAIC R&D Centre for research and development activities in the state of Haryana. The centre has already set up a project at Murthal for production of spawn/mushroom. The centre is also setting up a modern Hi-Tech Agriculture Farm at Kishanpura in Jind district.

National Productivity Council of India has awarded First National Productivity Awards for the year 1999-2000 to this corporation.

Haryana Land Reclamation & Development Corporation Ltd.

Haryana Land Reclamation and Development Corporation Limited was incorporated on 27th March, 1974 with the main objective of implementing the Land Reclamation and Land Leveling Programme in the state. The major programmes at present are as follows: -

- Reclamation of alkali soils
- Production of quality seeds
- Sale of agricultural inputs

1. LAND RECLAMATION

Gypsum is the most important ingredient for reclamation of alkali soils. The recommendation of its application is 5 to 12 MT per hectare as per the requirement of soils. Gypsum is being provided on 50% subsidy to all the farmers under the Centrally Sponsored Scheme. The expenditure of subsidy is being given by the Government of India as 90% grant-in-aid & 10% as loan by the State Government Since inception of this scheme an area of more than 2.68 lakh hectares was reclaimed by 2003-2004.

The year-wise sale of Gypsum and area reclaimed since 1999-2000 to 30-06-2004 are as under: -

YEAR	SALE OF GYPSUM IN MT	AREA RECLAIMED IN HEC.
1999-2000	78832	8670
2000-2001	86820	12136
2001-2002	94585	14009
2002-2003	109047	16480
2003-2004	91794	12192
2004-2005 (1.4.2004 to 30.6.2004)	15825	3165

Thus upto the year 2003-2004, the Corporation has reclaimed an area of 267995 hect. Besides Land Reclamation Scheme, gypsum is also being provided to the farmers under Oil Seed Scheme at 75% subsidy.

From July 1999 to May, 2004, Corporation distributed 448204 MT gypsum on subsidy and reclaimed an area of 61254 hectares.

2. PRODUCTION OF QUALITY SEED.

The Corporation has farm of 1419 acres at Hisar with total cultivated area of 1287 acres. Corporation raises foundation seed as per the programme of Haryana Seeds Development Corporation on this farm besides raising commercial crops.

The year wise data of produce obtained at Hisar Farm during 1999-2000 to 2003-2004 are as under: -

Year (Kharif and Rabi)	Produce obtained (Qtls.)
1999-2000	85634.84
2000-2001	97586.21
2001-2002	109,132.00
2002-2003	93305.00
2003-2004	75387.00

The main seed production programmes of cotton, paddy, wheat and raya crops beside sugarcane as commercial crop are undertaken.

3. SALE OF AGRICULTURAL INPUTS

The corporation also has undertaken the sale of various agricultural inputs such as different types of weedicides, pesticides and fertilizers. It also sells wheat seed allocated to it by the Department of Agriculture to be lifted from Haryana Seeds Development Corporation. Besides these the corporation also stocks and sells various types of plant protection equipment allocated to the dorporation by the Department of Agriculture under its various subsidy schemes.

The years wise sales of various agricultural inputs since 1999-2000 till 2003-2004 are tabulated as under: -

Sr. No.	Name of Input	Unit	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004
1	a) DAP	MT	14866	40125	27915	41882.45	31629.05
	b) Urea	MT	23782	38754	2980	31469.65	32790.70
	c) Zinc Sulphate	MT	291	212	4	137.77	385.480
	d) N.P.K.	MT	-	-	-	-	435.00
	Total		**38939**	**79091**	**30899**	**73489.87**	**64930.71**
2	Weedicides	MT	45.957	15.125	9.638	7.606	8.791
	Pesticides	MT	33.000	42.554	45.226	31.275	34.269
	Total		**78.957**	**57.679**	**54.864**	**38.881**	**43.06**
3	Seeds	Qtls.	6910	2825	4174.80	7847.58	8412.120
	Spray Pumps & food sprayers & Duster	Nos.	6187	8980	24205	26223	28785
	Bio-fertilizers	Unit	-	-	-	-	6191

From July 1999 to May, 2004, the sale of various inputs have been as follows: -

Sr. No.	Name of Input	Unit	Qty. Sold
1	DAP	MT	156653.0
2	Urea	MT	133962.90
3	Zinc Sulphate	MT	950.49
4	Weedicides	MT	86.482
5	Pesticides	MT	186.318
6	Seeds	Qtls.	30135.92
7	Spray Pumps & Food sprayers & Dusters	Nos.	94272
8	Bio-fertilizers	Unit	6191

The stocking of agricultural inputs is done as per stock in plan of the Department of Agriculture and the requirement indicated by the field officers of the corporation.

4. TRANSFER OF GOVERNMENT FARMS

The Government in the Agriculture Department has transferred 23 farms with a total area of 1092.6 acres for self-cultivation and also for lease. Six farms with an area of about 597 acres are under direct cultivation and 17 farms with an area of 454 acres have been given on lease on annual basis through open auction. The State Government has transferred 41 acres, 2 Kanal, 6 Marla land of Government Seed Farm Kohlawas, Bhiwani, to CCS HAU, Hisar for establishment of Krishi Vigyan Kendra, on lease. Thus the total area now leased to the corporation remains 1051 acre 03 Kanal and 14 Marla. These farms have been transferred for a period of 25 years at a lease of Rs.1000/- per year/acre with 10% increase after every five years. Seed production programme is also taken on the farms under direct cultivation.

HARYANA STATE COOPERTIVE SUPPLY & MARKETING FEDERATION LIMITED (HAFED)

The Haryana State Cooperative Supply & Marketing Federation Limited was registered as an apex federation in 1966. The main objectives of Hafed are:

(a) Supply of agricultural inputs such as fertilisers, insecticides, pesticides, implements etc.

(b) Make arrangement for marketing, processing of agricultural and allied product and

(c) Facilitate the working of affiliated Co-operative Societies.

INFRASTRUCTURE

To supplement these functions, Hafed has following infrastructure :

Storage Capacity (Godowns)	:	7.39 Lakh metric tonnes
Storage Capacity (Open)	:	7.43 Lakh metric tonnes
Rice Mills	:	13
Cotton Ginneries	:	3
Oil Complexes	:	3
Pesticides Plant	:	1
Barley Malt Plant	:	1
Animal Feed Complex	:	2
Cold Storage's	:	3

FINANCIAL-STATUS

The turnover of Hafed for the year 2002-03 is to the tune of Rs.3658.92 Crore. The turnover and profit of the last few years is as under:

(Rs. in crore)

Year	Turnover	Profit
99-2000	1384.20	22.54
2000-01	1342.68	23.86
2001-02	2129.05	24.03
2002-03	3658.92	22.03
2003-04	3950.00	17.00

MAJOR ACTIVITIES :-

a) WHEAT PROCUREMENT

During the rabi-2003, the State Government allotted 33% share for procurement of wheat against the 42% during rabi-2001. The wheat procurement is done on behalf of Central Pool (FCI) and total quantity is delivered to FCI. Procurement during the last few years is as under:

Year	Quantity (lakh metric tonnes)
99-2000	14.10
2000-01	19.26
2001-02	27.22
2002-03	21.08
2003-04	18.04

(b) FERTILIZER AND PESTICIDES

Hafed distributes urea, DAP, NPK, SSP and Zinc Sulphate fertilizers through the net work of Primary Cooperative Marketing Societies which is further distributed through a network of approximately 2200 Mini Banks. Fertilizer sale during last few years is as under:-

(In lakh metric tones)

Year	UREA	DAP	Total (including other)
99-2000	2.63	1.50	4.15
2000-01	2.63	1.37	4.03
2001-02	2.35	1.25	3.62
2002-03	1.67	1.07	2.77
2003-04 (Tentative)	1.90	1.02	2.98

Hafed undertakes marketing of various kinds of insecticides and weedicides and certified seed through 61 Cooperative Marketing Societies and 2200 Mini Bank.

(c) PADDY

Hafed procures basmati as well as non basmati paddy for processing in its rice mills. The purchases are made on commercial lines for domestic sale as well as for export. Paddy is also purchased at support price, which is delivered to FCI as per Government of India scheme. Out of non Basmati the paddy purchased on commercial rates, 75% levy rice has to be delivered to FCI on rates fixed by Government of India, which generally are not remunerative.

The performance of this activity during last few years is as under:-

Year	Paddy Purchased (Qty. in metric tonnes)		
	Basmati	Non-Basmati	Total
99-2000	6603	134383	140986
2000-01	-	598600	598600
2001-02	2000	569000	571000
2002-03	2150	554387	556537

Hafed procured 4.43 lakh MT paddy during the Kharif–2003, which includes 10,000 MT basmati paddy. 1.07 lakh MT rice had been delivered to FCI.

(d) EXPORT

Hafed, after a gap of about 12 years, has entered the export market for export of Basmati rice. It has exported 430 qtls. of Basmati Rice to Brisbane (Australia). Hafed has exported 1.30 lakh MT of rice(Permal) and 15 lakh MT of wheat amounting to Rs.915 crore approximately.

PROCESSING UNITS :-

1. HAFED OIL COMPLEX, RATIA

This plant has integrated oil-processing facilities. Besides making army supplies, Hafed has entered in domestic market by making supplies to consumers through its distribution network and its own retail outlets. The turnover and profit/loss of the Oil Complex, Ratia is as under :-

(Rupees in lakh)

Year	Turnover	Profit/Loss
99-2000	120.21	-72.88
2000-01	567.56	-50.97
2001-02	81.00	-32.31
2002-03	165.41	-8.97

Hafed has also installed an automatic pouch filling machine at Ratia to increase the packing capacity of refined oils and has introduced a new cost effective poly pouch of 1 Kg. and also an attractive 5 Kg. poly jar packing for refined oils. Recently Hafed had launched the Soyabeen Refined Oil.

2. HAFED OIL MILL, REWARI

During 1986, a mustard oil mill was set up at Rewari with a target capacity of 15 MT per day on three-shift basis. Capacity of oil mill has doubled in the month of January, 2001. This mill produces 'Kachchi Ghani' 'Agmark' mustard oil, the quality of which is comparable with the best available in the country.

The performance data of the mill for the last few years is as under:

Year	Mustard Seed Crushed (In metric tonnes)
19 99-2000	2479
2000-01	3774
2001-02	4944
2002-03	4554

The Kachi Ghani mustard oil produced in this plant has got a consumer preference. Most of this production is being marketed in consumer packs.

3. HAFED CATTLE FEED PLANT, ROHTAK

Hafed cattle feed plant was set up during 1976, has facilities for manufacturing cattle feed, poultry feed, piggery feed & mineral mixtures, bricks and molasses urea bricks. The consistency in quality and regular supply has earned a lot of goodwill for Hafed cattle feeds. The performance data of Cattle Feed Plant of last few years is as under:

Year	Production (In metric tonnes)
99-2000	15726
2000-01	15835
2001-02	15101
2002-03	15469

HAFED ANIMAL FEED PLANT SAKTAKHERA

Hafed has set up an animal feed plant at Saktakhera of 50 TPD capacity with a project cost of about Rs.1.90 Crore. The performance the plant during the year 2001-02 onwards is as under:

Year	Production (In metric tonnes)
2001-02	1240
2002-03	2506

5. HAFED PESTICIDES PLANT, TARAORI

With a view to make available quality insecticides and weedicides at reasonable prices, Hafed established a pesticide plant at Taraori in 1974. During the last few years, several new products have been added to meet the requirements of wheat, paddy, cotton & oil seed crops of Haryana State. Hafed has formulated Deltamethrine 2.5%, which is being used for fumigation of food grains. There is proposal for formulation of 3 new products in plant i.e Clodinotop-Paropargyl 15 W.P., Sufforn 75 % W.G & Penoxaprop 10 EC.

8. HAFED OIL MILL, NARNAUL

The Modern Kachchi Ghani Mustard Oil Mill at Narnaul of 30 TPD capacity was established on 26.2.03 with a project cost of Rs.2.83 Crore.The performance of the mill year is as under:

Year	Mustard Seed Crushed (In metric tonnes)
2003-04	1879

9. HAFED COLD STORAGES.

Hafed has set up three cold storages at Taraori (3000 MT), Shahbad (4000 MT) and Hisar (4000 MT) for storing potatoes of farmers so that they may store their crop when prices are low and may sell when prices are remunerative.

VI NEW PROJECTS.

A. SETUP DURING 2001-02 & 2002-03

1. Setting up of Rice Mill at Kalanwali

Hafed set up a rice mill of 2 MT per hour capacity at Kalanwali with a project cost of Rs.2.75 crore.

2. Setting up of Rice Mill at Ding

Hafed set up a rice mill of 2 MT per hour capacity at Ding in the existing building of CSP, Ding with a project cost of Rs.1.50 Crore.

3. Setting up a Modern Rice Mill at Rania

Hafed has set a modern rice mill of 2 MT per hour at Rania with a cost of 2.50 crore.

4. Construction of Godowns

To meet the requirement of covered storage space, Hafed has initiated a massive campaign for construction of godowns/creating warehousing capacity for storage of rice, other food grains etc. Hafed had already constructed 3,38,866 MT capacity godowns. Besides this, Haryana Government had fixed a target for construction of 3,25,000 MT capacity godowns under 7 year guarantee scheme of FCI. The construction of 2,65,000 MT capacity godowns through private parties had been completed. The balance 60,000 MT capacity godowns have been provided to FCI from Hafed's godowns. With the completion of these godowns, Hafed has created additional storage capacity of 6,03,866 MT godowns. Thus, the total capacity of 10.04 lac MT Godowns is available with Hafed.

5. Financial assistance to Cooperative Sugar Mills.

As per direction of the State Government Hafed is providing the financial assistance in shape of equity for promoting two Cooperative Sugar Mills namely the Sirsa Cooperative Sugar Mills Ltd., Panniwala Motta and the Gohana Cooperative Sugar Mills Ltd., Gohana. The capacity of Sirsa and Gohana Sugar Mills would be 1750 TCD and 2500 TCD respectively. As per DPR, the project cost would be Rs.44.00 Crore and Rs.56.00 Crore of Sirsa and Gohana Cooperative Sugar Mills respectively. Rs.38.99 Crores and Rs.46.37 Crores has already been given to Sirsa Cooperative Sugar Mill and Gohana Cooperative Sugar Mills respectively.

B FUTURE PLANS

1. Hafed franchises at village level:.

As all the villages do not have mini banks, Hafed with the approval of State Government has started the process of appointing Hafed franchises in those

villages where mini banks are not functioning. These franchises located in the villages will sell fertilizers, pesticides, animal feeds and consumer products of Hafed. Hafed has already received 375 applications out of which 246 applicants have been selected for appointment as Hafed franchises. This step will not only ensure easy availability of the aforesaid products to the farmers in remotest villages, but will also provide employment to the rural youth who are being selected as franchises.

2. Contract Farming:

In order to maximize the returns from agriculture, diversification of crops is being considered by India. Hafed has taken an initiative in this direction in the state of Haryana by bringing together all concerned Government agencies/ departments and private entrepreneurs. The proposal for contract farming is under the consideration of the Government and possibility of framing appropriate legislation and procedures to safeguard the interests of the participating farmers is being explored. Crops like barley, mentha and other medicinal plants are being considered for contract farming in the state of Haryana.

3. Hafed is setting up Multi-storied Modern Warehouse-cum Cold Storage of 11,000 MT capacity at Lawrence Road, Delhi. The project is likely to be completed by April-2004.

4. There is a proposal to set up a Modern Rice Mill (Export Oriented Unit) at Taraori.

5. There is a proposal to construct godowns of 102000 MT capacity at various places in Haryana.

6. Implementation of various IT components for e-governance and providing web enabled services to farmers/customers.

7. Strengthening marketing infrastructure and establishing brand image of Hafed products.

8. ISO 9001:2000 & other relevant certifications to build corporate image and to attract more business for which the process has already been initiated.

9. The performance of the Federation has been depicted in the following table: -

Sr. No	Particulars	1999-2000	2000-01	2001-02	2002-03
1	Procurement of Wheat (Lakh MT)	14.10	19.26	27.22	21.08
2	Purchase of Mustard seed (MT)	2636	30443	36030	75361
3	Purchase of Paddy (MT)	140986	598600	571000	5.56
4	Fert. Distribution (Lakh MT)	4.15	4.03	3.65	2.77
5	Production of Cotton (Bales)	3403	1470	Nil	Nil
6	Warehouse Cap.Util (%)	75	80	80	85
7	Marketing of Consumer goods (Rs. In Crore)	6.56	11.16	N.A.	N.A.
8	Production of Animal Feed (MT)	15726	15800	15101	18000
9	Business Turnover (Rs. In crore)	1384.20	1342.68	2129.05	3658.92
10	Profit (Rs. In crore)	22.54	23.86	24.03	22.03

HARYANA STATE AGRICULTURAL MARKETING BOARD

Under the Punjab Agricultural Produce Markets Act, 1961, On 1st August 1969, Haryana State Agricultural Marketing Board came into existence, ushering in an era of commitment of service to the farmers, traders and the general public alike.

The primary objective of the Haryana State Agricultural Marketing Board and the Market Committees under it is to set up marketing infrastructure for the better regulation of the purchase, sale, storage and processing of agricultural produce and the establishment of markets for this purpose in the state of Haryana. The board has come a long way to achieve its objectives to a great extent. There were only 58 market committees and 60 sub yards in the state in 1969 and the farmers had to travel long distances to sell their produce. The markets were narrow and ill planned, the basic facilities were lacking and the regulation and enforcement was grossly inefficient which led to exploitation of farmers by the traders. Through meticulous planning and speedy execution of the projects the board succeeded in setting up 106 market committees with 106 principal yards, 178 sub yards and 175 purchase centres as of now. Thus, today with 459 markets in the state. The farmers now do not have to travel more than 5 to 8 KMS, to sell their produce. Most of these markets have been provided with modern facilities and amenities for the benefit of all the users of these markets.

Cotton markets have also been developed with the assistance of technology mission on cotton, Ministry of Textiles, Government of India. The mission cotton markets at Ellenabad, Sirsa, Dabwali, Hisar, Fatehabad, Kalanwali, Uchana and Hansi are functioning and development of 3 new mandis at Narwana, Uklana and Bhiwani were renovated.

Due to rapid strides made in agricultural production in state, the arrival of commodities in the mandis increased manifold since 1969 as is evident from the following table : -

Agricultural Produce	**Arrivals in lakh tonnes**	
	1969-70	**2003-04**
Wheat	4.81	51.80
Paddy	3.72	40.80
Oil Seeds	0.62	1.60
Cotton	1.24	24.00
Fruit & Vegetables	1.77	7.10

The board took up the construction of link and approach roads in a big way through its own construction wing since 1989. A total road length constructed by the board so far comes to 8285.26 KMS. Besides this in 1991, a policy decision was taken by the State Government for the repair of urban roads so that the different markets in the State could be approached through these roads. This has provided much needed resource support for ameliorating the construction of roads and the board has so far completed this work in 79 townships at a cost of Rs.12 crore.

This board also felt need of storage capacity in the state. Keeping in view this aspect, the board constructed godowns with a capacity of 4.27 metric tonnes. Besides this covered sheds with a capacity of 7.97 lakh metric tonnes have been constructed in the mandis.

The board has also undertaken a programme of setting up of fire fighting stations in the cotton belt mandis of the state and so far 22 fire fighting stations have been set up with all the modern amenities in order to avoid fire accidents.

The board and the market committees have set up Kisan Mandis or Apni Mandi at all districts head quarters. In these mandis, there is no middle man and the producers sell their produce directly to the consumers. For this reason these mandis have become very popular and the producers get much higher rates for their produce while consumers also get fresh fruits and vegetables at much lower rates. There is increasing demand for opening more such mandis at other places also. Earnest efforts are being made to extend facility of Apni Mandi at more places in the state.

THE HARYANA STATE COOPERATIVE AGRICULTURE AND RURAL DEVELOPMENT BANK LTD.,

The Haryana State Cooperative Agriculture and Rural Development Bank Ltd. (HSARDB), was set up on 1st November.1966 under the Haryana Cooperative Societies Act.

The main objective of the bank is purveyance of long term credit to the agriculturists through federal structure comprising primary agriculture and rural development banks (PARDB).

LOANING PORTFOLIO

This bank is advancing long term loans for the following sectors/ schemes:-

1.	Minor Irrigation	a)	Shallow / Deep Tubewells
		b)	Sprinkler Irrigation
		c)	Water Channel System
2.	Farm Mechanisation	a)	Tractors
		b)	Thresher Sets / Straw - reaper
		c)	Combine Harvesters
		d)	4-Wheel Trolleys
		e)	2-Wheelers
		f)	J.C.B.s
3.	Horticulture/Plantation	a)	Mango / Pear / Guava / Grape Orchards
		b)	Poplar/Kikar/ Safeda Plantation/Farm Forestry
		c)	Mushroom Cultivation / Strawberry
		d)	Floriculture, Medicinal & Aromatic Plants
		e)	Drip Irrigation

4.	Land Development	a)	Land Reclamation
		b)	Land Leveling
		c)	Redemption of Land
		d)	Purchase of Land
		e)	Waste Land Development
5.	Animal Husbandry	a)	Dairy Development
		b)	Poultry Development
		c)	Fisheries including Prawn Culture
		d)	Sheep/ Piggery /Goat
		e)	Animal Driven Carts
		f)	Cattle sheds
6.	Non-Farm Sector	a)	Tinny, Cottage & Small Scale Industries
		b)	Road Transport / Passenger Vehicles
		c)	Integrated Loan Scheme
		d)	KVIC Margin Money Scheme
		e)	Rural Housing Scheme
		f)	Agri-Clinic and Agri-Business
		g)	Rural Godowns/ Cold Storages/ Community Halls, Rural Educational Infrastructure

The Bank has advanced loans worth Rs. 3918.27 crore from 1.11.1966 to 30.11.04 through its 45 PARDBs in the State. Scheme-wise achievement of loaning during the last five years is given below :-

(Rs. in lakh)

Sr. No.	Sector/Schemes	2000-01	2001-02	2002-03	2003-04	2004-05 (upto 30.11.04)
1.	Minor Irrigation	3966.08	2771.53	3220.18	8740.00	10026.41
2.	Farm Mechanization	7347.30	9608.52	8603.78	6136.59	3417.29
3.	Land Development	285.41	283.31	305.81	939.81	404.31
4.	Dairy Development	7602.70	8221.36	8185.31	4373.51	2819.11
5.	Hort./Farm Forestr	1296.04	1156.08	1127.79	2682.78	3694.92
6.	Non Farm Sector	1907.77	877.05	675.82	931.73	897.05
7.	Purchase of land	---	738.93	2056.64	2221.17	2765.56
8.	Rural Housing	---	5866.45	7043.46	4357.13	4990.82
9.	Cattle shed	---	1598.33	4806.06	1543.65	2470.62
10.	Rural Godowns	---	---	---	116.62	259.62
11.	Others (Incl. Ord Prog.)	5228.28	5480.25	4645.08	10681.78	9070.04
	Total	**27633.58**	**36601.81**	**40669.93**	**42724.77**	**40815.75**

The Bank has reduced the rate of interest from 17% (1999) to 10% p.a. Rate of interest charged from the borrowers w.e.f. 1.06.2004 is as under: -

Sr. No.	Name of Scheme	Rate of interest charged from ultimate borrowers
A	Minor Irrigation Schemes, Land Development, Dry land Farming, Waste Land Development, R H, FM	
	i. Upto Rs. 50000/-	9% p.a.
	ii. Above 50000/-	9.5% p.a
B	Cold Storage, Rural Godowns, NFS, and others.	
	i. Upto Rs. 50000/- :	9% p.a.
	ii. Above Rs.50000/- to Rs.2.00 lakh :	9.5% p.a
	iii. Above Rs.2.00 lakh :	10% p.a.

FINANCIAL POSITION

The financial indicators of the HSARDB during the last five years are given below: -

(Rs. in crore)

S. No.	Particulars	1999-2000	2000-01	2001-02	2002-03	2003-04
1.	Authorised Share Capital	40.00	40.00	40.00	40.00	60.00
2.	Paid up Share Capital	27.55	29.19	32.22	34.95	34.29
3.	Owned Funds	92.96	102.03	111.22	118.36	124.47
4.	Working Capital	1219.31	1371.89	1590.24	1829.48	2095.50
5.	Borrowings	1113.46	1258.81	1463.57	1704.36	1890.47
6.	Loans Outstanding	1047.41	1178.44	1366.08	1604.74	1790.32
7.	Investment in Debenture Redemption Fund	52.75	61.10	67.60	75.68	69.18
8.	Profits	6.53	7.01	7.74	9.11	0.17

RECOVERY POSITION

APEX Level : During the year 2003-04, recovery of HSARDB has been 90 % of the demand.

PRIMARY LEVEL : The recovery position of the PARDBs in the state is given as under :

(Rs. in Crores)

Years	Demand	Collection	% of Recovery
1999-2000	**444.77**	**271.50**	**61 %**
2000-2001	542.06	334.60	61.7%
2001-2002	645.47	401.24	62.1%
2002-2003	759.81	480.28	63.2%
2003-2004	916.74	633.00	69 %

TRAINING:

The HSARDB is running its own Staff Training Centre at Panchkula with the assistance of NABARD. The Centre is catering to the training needs of the staff of the HSARDB and PARDBs.

AWARD OF TROPHY:

This year the Bank has also been awarded trophy by National Cooperative Agriculture and Rural Development Bank's Federation for Second Best Lending Performance for the year 2000-01.

THE HARYANA STATE SEED CERTIFICATION AGENCY

The Haryana State Seed Certification Agency was established in the year 1976 under Seeds Act-1966 . This Agency was got registered as independent body on 6-4-1976 under the Registration of Societies Act-1860 and started its independent working w.e.f. 1.9.1976. The administrative office of the Agency is located at Panchkula and three regional offices are at Karnal, Hisar and Sirsa respectively.

The aims and objectives of the Haryana State Seed Certification Agency are as given below: -

a) To act as the Certification Agency established under section 8 of the Seeds Act, 1966 (54 of 1966).

b) To discharge the functions entrusted to the Certification Agency under Sector 9 & 10 of the Seeds Act 1966 (54 of 1966).

c) To recognize varieties (all kinds where improved varieties are not available) eligible for seed certification and publish annually the lists indicating the names of such varieties and kinds.

d) To maintain a list of sources of breeder & foundation seeds approved by the Central Seed Certification Board in the case of variety grown in more than one state and by the State Seed Certification board in case of varieties of local importance.

e) To verify upon receipt of an application for certification that the variety is eligible for certification, that the application has been submitted in accordance with the procedure prescribed by the State Seed Certification Governing Board and that the source of seed used for planting is from approved sources.

f) To provide for the inspection of seed fields, seed processing plants and seed lots in accordance with the procedures outlined by the Central Seed Certification Board.

g) To ensure that the seeds certified in the state conform to the standards prescribed by the Central Seed Certification Board.

h) To grant certificates, certification tags and seals etc. designed as per specifications provided by the Central Seed Certification Board and as per procedure prescribed by the State Seed Certification Governing Board.

i) To carry out educational programmes designed to promote the use of certified seed including a publication listing co-operators in the seed certification programme & sources of certified seed and provide such information to the Central Seed Certification Board and to publicize the same.

j) To regulate the processing of seeds in the seed processing units with a view to see that seeds are properly processed to conform to the standards fixed.

k) To test the seeds at the notified seed testing laboratories to conform to the standards prescribed under Seeds Act.

l) Periodical inspection of premises of dealers to ensure that certification standards are not violated and there is no abuse of certification in any form and to ensure that farmers get certified seeds conforming to the standard prescribed under the Seeds Act al all times.

Programme & schemes to achieve the objectives: -

The programme of certification is offered by various seed producing agencies like, Haryana Seeds Development Corporation, Department of Horticulture, CCS Haryana Agricultural University, Hisar, Haryana Land Reclamation & Development Corporation, National Seeds Corporation, IFFCO, and KRIBHCO and other private seed growers/agencies. The agency through its contact and training encourage the programmes for certification of seeds and the area and quantity offered by these organizations and growers during the season/year for certification become the targets of work of the Haryana State Seed Certification Agency.

The Haryana State Seed Certification Agency is undertaking the various certification activities as per the norms and standards provided in the Indian Minimum Seed Certification Standards, approved by the Central Seed Certification Board, under the provisions of the Seeds Act-1966. Every effort to enhance the business of the agency is undertaken through its contact and training programmes. The profitability of the agency is undertaken through better management, by curtailing wasteful expenditure and enhancement of various fees as per requirement.

Achievements: -

(A) Physical

The details of area inspected and quantity of various crop seeds certified by the Haryana State Seed Certification Agency from the year 1976-77 to 2002-03

are given below: -

Year	Area inspected (Hectares)			Quantity certified (Quintals)		
	Kharif	Rabi	Total	Kharif	Rabi	Total
1976-77	1633.20	6126.44	7759.64	30800.26	105393.78	136094.04
1977-78	1734.66	6475.28	8209.94	27384.55	105293.78	134323.75
1978-79	2375.61	10315.42	12691.03	28056.12	184827.58	212883.70
1979-80	2304.28	12025.34	14335.62	28885.89	216719.97	245605.86
1980-81	4349.26	15625.67	19974.93	49393.45	231302.95	280696.40
1981-82	4465.12	15869.48	20334.60	48491.32	190400.06	238891.38
1982-83	4598.43	13916.90	18515.33	39294.69	248860.02	288154.71
1983-84	5320.56	16993.42	22313.98	36278.48	294854.79	331133.27
1984-85	6468.96	17857.68	24326.64	63099.52	368093.49	431193.01
1985-86	6750.81	14447.49	21198.30	51846.13	29512.64	347358.77
1986-87	5562.67	12447.76	18010.43	33428.49	173639.02	207067.54
1987-88	3392.44	9836.28	13228.72	18588.22	188803.00	207391.22
1988-89	5260.09	14258.02	19518.11	27520.22	318528.80	346049.02
1989-90	6096.69	11224.13	17320.82	40355.55	205891.81	246247.36
1990-91	5543.50	12909.29	18452.79	33441.89	234627.18	268069.07
1991-92	6025.00	14296.29	20321.29	50253.46	290325.30	340578.76
1992-93	8769.38	17201.79	25771.17	72991.98	377390.52	470382.50
1993-94	7550.48	15930.36	23480.84	56715.90	400885.71	477601.61
1994-95	11625.95	17766.94	39392.89	88944.90	422614.57	511559.47
1995-96	20383.63	20450.04	40833.67	128476.57	372082.45	500559.02
1996-97	17389.01	21401.49	38790.50	108885.91	466838.07	575623.98
1997-98	19452.84	22963.01	42415.84	84748.28	420011.67	504759.95
1998-99	17044.01	26192.99	43237.00	109322.41	605284.92	7146207.33
1999-00	17179.61	29798.08	46977.69	168174.02	765641.70	933815.72
2000-01	15304.20	22982.12	38286.32	137706.95	474844.75	612551.70
2001-02	14119.27	22772.85	36892.12	109379.28	576609.32	685988.60
2002-03	13626.06	27089.29	40715.35	151376.30	687330.40	838736.70

(B) Financial achievements: -

At present the financial position of the Haryana State Seed Certification Agency is quite satisfactory, as it has not taken any grant-in-aid from the State Government, since the year 1991-92. This is good work done by the agency and there is continues increase in the area offered for certification and production of certified seed, which helped the agency become self reliant from the year 1991-92.

The income and expenditure of Agency since the year 1998-99 to 2002-03 are as under: -

Year	Income (Rs. In lakh)	Expenditure (Rs. In lakh)
1976-77	534324.29	648557.86
1977-78	619627.56	671269.26
1978-79	773246.65	906420.24
1979-80	973692.14	967896.62
1980-81	1179540.68	1202797.82
1981-82	1381235.03	1381714.11
1982-83	1604488.27	1902141.31
1983-84	2029413.40	2201172.00
1984-85	2063500.80	2152869.57
1985-86	3103045.80	2298077.20
1986-87	2848902.13	2315238.25
1987-88	2911331.93	3098051.89
1988-89	2492505.86	3075385.90
1989-90	3386353.30	3040935.64
1990-91	3988555.00	2999157.89
1991-92	3937553.00	3436448.69

1992-93	4976569.60	3654538.10
1993-94	6070413.60	4069786.44
1994-95	7956680.00	4589106.42
1995-96	10511610.40	5816973.19
1996-97	14661799.05	7657583.27
1997-98	14761399.25	9645992.42
1998-99	16393208.00	15024156.00
1999-00	18181604.38	14816451.96
2000-01	16388762.00	14698443.14
2001-02	16531015.75	15786685.71
2002-03	16398901.16	16376980.56

Under a comprehensive policy on agriculture, the State Government is taking crop diversification forward, besides promising remunerative minimum support price and marketing opportunities. Steps are being taken to providing additional infrastructure like storage facilities, chilling plants and modernisation of mandis with the help of private sector. Total crops insurance scheme is being implemented in the state. Export zone for the export of basmati rice and other fine variteties of rice have been created. Overall agricultural development has got priority now.