CHAPTER 6
CONCLUSIONS AND POLICY IMPLICATIONS

This chapter attempts to present the concluding observations of the whole study along with the important policy implications emerging out of it. To have a clear idea about the whole study, this chapter has been divided under the following heads:

1. Summary of Historical Development of HYVs;
2. Observations from a Review of Literature;
3. Adoption of HYVs;
4. Growth Performance of HYVs;
5. Policy Implications; and
6. Potential Research Areas

1. SUMMARY OF HISTORICAL DEVELOPMENT OF HYVs

Important observations emerging from the review of the HYVs' development in Gujarat during the different plan periods are given as under:

1.1 During the last more than four decades Indian agriculture experienced a substantial growth in the production of different crops. In respect of number of crops, the domestic demand is fully met, while for some crops export surplus is also generated.
However, in order to meet the ever-increasing demand consequent to the continuously growing population as also increasing importance of agro-based industries, a further progress has become equally essential. The growth so desired will have to be attained principally through substantial increase in HYV area under different crops.

1.2 HYVP plays a crucial role in raising agricultural production and, time and again, their importance has been duly recognised by the planners in our country.

1.3 Throughout the different plan periods, the policy related to HYVs has emphasized the following four aspects:

(i) Increase in the use of HYVs seeds over time.

(ii) Improvement in the distribution network of HYV seeds.

(iii) Scientific use of HYV seeds through: (a) improvement and expansion of laboratories for seed testing; and (b) improvement and expansion of the extension network in the different parts of the country.

(iv) The promotion for the use of HYV seed in rainfed areas.
1.4 The use of HYVs seeds is expected to increase the per hectare yields of crops by two times or more. This has been clearly proved in the data collected at the experiment stations. In practice, although wide variations have been observed in number of areas, promising results have been obtained.

1.5 HYVs help create additional employment. Principally, the additional employment is generated through higher application of strategic inputs, increased intensity of various agricultural operations, higher production etc.

1.6 As regards the HYV development, the study notes the following achievements:

(i) Production of HYV seeds increased over time. Consequent to this, the supply situation of seeds improved in the country.

(ii) Over time, the number of laboratories for seed testing increased and consequently better quality seeds are made available.

(iii) At the all-India level, the proportion of HYV area to respective total cropped area increased from 2.52, 4.21, 1.06, 0.48 and 4.10 for rice, wheat, jowar, bajra and maize respectively in 1966-67 to 65.79, 88.24, 53.08, 52.97 and 43.20 for rice, wheat, jowar, bajra and maize in
1992-93. Thus, overall growth of area can be considered as quite significant.

(iv) Consequent to HYVP, the per hectare yield of five important cereal crops increased, of course, in varying rates. Among the important areas, crops achievement in respect of wheat has been quite substantial, as in 1992-93, the yield was higher by about 162 per cent as compared to that in 1966-67, in rice, jowar, bajra and maize, the corresponding percentage increase was noted as 102, 92, 129 and 74 respectively.

(v) The advent of HYVP made it possible to attain a peak level of foodgrain production of 190 million in 1994-95 which was 113 per cent higher than the estimate of 89 million tonnes in 1964-65, the best of the first 15 years of planned agricultural development in India.

(vi) Apart from five important cereal crops, for crops like cotton, tobacco, our achievements are noteworthy.

1.7 Despite the above-roted achievements, the development is found to be moderate. This is mainly due to the following:

(i) At a disaggregate plane of the States, and within each in a number of districts, improvement has
not been satisfactory in the growth rates in HYV area over time.

(ii) Non-availability of staff, inconsistent and inadequate power supply, inadequacy of testing materials etc. are general problems faced by laboratories for seed testing at present. This has come in the way of smooth development of HYVs in the State.

(iii) Although extension service improved over time, a lot remains to be done to make extension strategy effective enough to promote scientific use of HYVs.

(iv) Over a period of time the subsidy-credit ratio has remained unfavourable.

(v) Even at present some farmers are found following unscientific use of HYVs in respect of quality and quantity of seeds, the use of strategic inputs, etc.

The shortcomings thus stated above have created a significant influence on the growth of HYV area in Indian agriculture during the plan periods. Therefore, unless a proper policy is framed and practised to remove them, India will not be able to raise the area of HYVs in the years to come as envisaged in the development policy for HYVs.
The lower growth rate of HYV area in respect of some cereals at the all-India level and for each of the major cereals in different States in past has been attributed to the following constraints:

(i) Inadequate supply of various types of HYV seeds.

(ii) Unfavourable ratio of gross irrigated area to gross sown area.

(iii) Inadequate supply of strategic inputs like fertilisers, pesticides etc. The bottlenecks in supply system of these inputs have also come in the way of growth in the area under these cereals.

(iv) Inadequate development of transport linkages.

In the context of the various constraints mentioned above, there is still vast scope of raising the area of HYV in India by:

(i) Increasing the ratio of gross irrigated area to gross sown area and this can be done through two ways: (a) rapid execution and development of irrigated projects in all the States of India; (b) improving the rate of utilisation of created irrigation potential in all the States, more particularly in respect of canal irrigation.
projects; and (c) by practising better water management techniques.

(ii) Further spread and diffusion of HYVs.

(iii) The development of complete network of transport linkages.

(iv) Ensured supply of various HYV seeds throughout the country.

(v) Ensured and adequate supply of strategic inputs like fertilisers, pesticides etc at reasonable prices.

1.10 The need to increase future HYV area in India is attributed to the forces indicated below:

(i) The source of an increase in net cultivated land is already exhausted. The maximum annual net cropped area for India for the quinquennium of 1966-67 to 1989-90 for which the data are available was 1,40,349 hectares which is just the same as that which was attained in the previous quinquennium of 1966-67 to 1969-70. Hence, there are only two ways available to increase production. One, to increase double/multiple cropped area and second, to increase productivity of the present cultivated area. It is in the latter context that the increase in HYV area has to play a significant role.
(ii) The advocates of the new strategy consider the intensive approach with HYVs to be one of the crucial components as the only means of making a break-through in Indian agriculture in the shortest possible time.

(iii) It has been found that the strategic agricultural inputs are scarce all over India. The choice is said to have a thin layer of the inputs spread over the entire cultivated area in the country or to apply concentrated doses in selected and promising areas. The latter choice, as selected by the Indian agricultural planners in forms of "Green Revolution", is assumed to be more rational as it ensures maximum production in short period.

(iv) The application of HYVs can bring higher economic returns if and only if it is accompanied by appropriate use of the strategic inputs. Thus, the adoption of HYVs is justified on economic grounds.

1.11 To maintain environmental balance in India, the net cultivated area needs to be reduced by around 30 per cent. This can be attained only if the rest 70 per cent of the net cultivated area provides substantially larger production to compensate the likely loss in production due to the reduction of 30 per cent net.
cultivated area. The only important strategy to meet this challenge lies in the HYVP.

1.12 Apart from accepting a major objective of raising adoption of HYVs through various economic forces, the future seed development policy for HYVs will have to largely concentrate on the issues other than the economic ones such as expansion in the extension facility, assurance of seed quality, provision of supporting activities for seed development such as irrigation facility, regular supply of other inputs etc. All these forces put together are likely to create an environment conducive to attain optimum level of agricultural production.

1.13 One of the important effects of the HYVP relates to increased inequality among farmers and regions. Although the total removal of inequity is absolutely impossible through appropriate policy action, inequity can be reduced in practice. It is pertinent to encourage balanced development of HYVs across farmers, across regions and across crops.

2. OBSERVATION FROM A REVIEW OF LITERATURE

The review has been divided into the following five heads:

(i) Concept of adoption of agricultural technology;

(ii) Extent of adoption of agricultural technology;
(iii) Factors associated with adoption of agricultural technology;

(iv) Constraints in relation to adoption of HYVs; and

(v) Impact of HYVs on the agricultural sector.

(i) Concept of Adoption of Agricultural Technology:

The concept of adoption incorporates a series of actions and decisions to adopt any specific practice. The literature review also includes the general behaviour of a farmer under given economic, social and phychic life situations.

(ii) Extent of Adoption of Agricultural Technology:

The extent of adoption is found to be higher among medium and large farmers as compared to small farmers. Farmers of young age-groups were found to be more responsive to adoption of HYVs as compared to relatively older age farmers. The extent of adoption of new technology was found to be lower in rainfed areas in comparison with irrigated areas. Technically it is maintained that constant improvement in seed technology is necessary and such improvements should be successfully practised at field level. Our experience in India indicates that the research work on this front is continuing and improvement is taking place. However, the fact observed is that only 10 per cent of the cropped area in India is under varieties which were developed in the last decade. Thus, a wide gap prevails in the developments taking place at research station and those practised at field
level. This is not a sign of desired development on HYV front and appropriate policy measures are needed to reverse this trend at the earliest.

(iii) **Factors Associated with Adoption of Agricultural Technology:**

The researchers in this field have identified all the important factors associated with the adoption of agricultural technology. With regard to each of the factors studied and its relationship with adoption of HYVs on new technology, four different variations are obtained. They are:

(a) no apparent relationship;
(b) negative relationship;
(c) positive relationship; and
(d) just the existence of relationship between a particular factor and its adoption without any indication of positive or negative relationship.

Here, contrasting observations across different types of studies have been obtained for each of the factors under study.

(iv) **Constraints to Adoption of HYVs:**

The studies completed so far have highlighted a number of constraints in adoption of HYVs. Important constraints observed are: irregular and inadequate supply of inputs like canal water, finance, electric power, inefficient use of various inputs, lack of knowledge about HYVs etc. Lack of standard quality of HYV
seeds is a major complaint observed all over the country. The shortage of foundation and breeder seeds is also widely felt in various parts of the country. The other constraints highlighted refer to lack of transport facility, small size of holding, problems of marketing etc.

(v) **Impact of HYVs on the Agricultural Sector:**

Due to the adoption of HYVs on a wide scale, substantial and varied impact on agricultural sector has been observed. According to various studies reviewed here, the impact of HYVs can be summarised under various heads such as employment, income, productivity and agrarian structure. HYVs have significantly raised employment, but the increased income and productivity seemed to have favoured large farmers as compared to small farmers. Besides, in some areas HYVs paved the way for expansion in the size of cultivated holding and increased mechanisation.

**GENERAL OBSERVATIONS:**

General observations emerging from the review of literature are presented here below:

(i) The HYVs programme has been found as launched with particular reference to major foodgrain crops of rice, wheat, jowar, bajra and maize and some commercial crops like cotton, jute, tobacco, oilseeds etc. In order to achieve a sustained rate of growth, it is vitally important that the research may be directed
toward those crops not covered so far so that a breakthrough in the output of these crops is also achieved.

(ii) Agricultural revolution initiated by the HYV programme in India was found to be more evident in respect of wheat. However, the programme did sow seeds of development for bajra, rice, jowar and maize. Among non-foodgrain crops, the HYV seeds have succeeded in cotton, but it raised a number of problems for its sustenance. While in the case of oilseed crops, particularly for groundnut, the revolution is yet to be seen.

(iii) A substantial rise in foodgrain production has taken place in Punjab, Haryana, Western U.P. and in some selected districts of Andhra Pradesh, Maharashtra, Gujarat, West Bengal and Tamil Nadu. Only the above-mentioned States and some districts in other States have shown a way to a big take-off in the agricultural production. Thus, a substantial part of India is yet to experience a substantial impact of HYVs.

(iv) Another important observation pertains to the fact that credit co-operative societies and rural banks spread over the rural areas of the country provided less than 30 per cent of the total farm credit and a large chunk of this credit went to big farmers. The small and marginal farmers who need less expensive credit had to be satisfied with most expensive credit
from non-institutional agencies. Consequently, the real prices of inputs to large farmers had remained substantially lower as compared to those for small farmers, obviously to the disadvantage of the latter.

(v) The new strategy was found to have created three types of conflicts namely, (a) between large and small farmers; (b) between owners of land and tenant farmers; and (c) between employers and employees. The nature of conflicts observed can be put up as under:

(a) Large farmers are capable of making heavy investment in fertilisers, pump sets, tubewells and agricultural machinery. They have easy access to credit from co-operatives. On the other hand, the small farmers are found deprived of the much needed inputs at reasonable prices.

(b) In India, quite a significant number of farmers possess small holding and consequently, they hire land on tenancy from large land-owners. Since the landlords pay for the strategic agricultural inputs, such farms are experiencing a dualism in agricultural production technique. The part of the land hired by tenants is provided with modern techniques, whereas the owned small fragments continue to be dominated by
traditional techniques. This has led to the cause of social tension. More so, when the landlords demand exploitative rents on the land hired by small landholders.

(c) The gains of HYVs were found being pocketed by the rich land-owning classes and the new strategy was further tilted the scales of distribution in their favour. It has been maintained that organised peasant resistance alone might help the small peasants, the tenants, the share croppers and the landless labourers, i.e. the agricultural proletariat to maintain their relative share in agricultural income intact.

(vi) Participation in the modernisation process was observed to be restricted to the regions which had shed, the feudal and semi-feudal structures and attitudes and where the inequalities in wealth and status were not conspicuous.

(vii) The HYVs have an inherent genetic capacity to give higher yields than traditional varieties. Therefore, the State should extend the programme of provision of HYV seeds to all the cultivated areas.
3. ADOPTION OF HYVs

In respect of HYVs, the important observations related to adoption behaviour of cultivators in Gujarat are noted here below:

1. It may be noted here that for Gujarat as a whole, the rate of adoption in respect of all five major cereal crops viz., paddy, wheat, jowar, bajra and maize is found to be higher in the first period over that in the second period. A disaggregate analysis attempted at the district level also reveals a similar development. For all these crops for most of the districts, the rate of adoption in the first period remained higher than that in the second period. Besides, some districts witnessed a negative rate of adoption in the second period. This means some of the factors which have fostered the rate of adoption in the first period have become weak in the second period.

2. Average percentage share of HYV area for all the five individual crops, ie paddy, wheat, jowar, bajra, maize and all the five crops put together to their respective total cultivated area worked out to 13.35, 39.40, 0.44, 35.21, 3.14 and 22.40 per cent respectively in the triennium ending 1968-69, which increased to 78.11, 80.04, 24.12, 76.94, 45.98 and

* The rate of adoption of HYV refers to the average annual rate of change in proportion of area under HYV for a particular crop to total cropped area of that crop.
62.59 per cent respectively in the triennium ending 1989-90. Thus, HYVs observed a fast spread in respect of paddy, wheat and bajra and low spread for maize and jowar. Thus, there prevails an adequate scope of HYV spread for maize and jowar which is about 54 per cent for maize and 76 per cent for jowar. The position so obtained is despite the fact that there was enough scope of development for these two crops. A general declining trend in the rate of adoption for these crops is a problem of great concern.

On the whole, it can be surmised that the benefits of investment in agricultural research have not reached uniformly to all regions and all farmers in these regions. Therefore, the spread of HYVs need to be substantially increased to avail of the benefits of investment in agricultural research to larger areas and farmers therein.

3. As regards the future prospects, a prediction is too difficult to make. However, on the basis of the consistent performance in the past two periods of analysis, the better prospective districts can be indicated for each of the crops studied here. Of course, such an indication is based on the assumption that the nature of working of the different factors determining the past rate of adoption would be maintained in future. On this ground, among the major
and minor districts producing different crops, the better prospective districts are shown in Table 6.1. Beside, districts with moderate prospects and those with poor prospects for all the five major crops are also identified (vide Tables 4.2, 4.4, 4.6, 4.8 and 4.10). In the districts with moderate or poor prospects of growth of HYVs, concerted efforts will have to be made in the direction of increasing irrigated area, developing suitable varieties of seeds, providing extension facility etc.

4. GROWTH PERFORMANCE OF HYVs

The following are the important observations with regard to the performance of HYVs in Gujarat which are classified into: (i) historical development of HYVs; (ii) concentration of HYVs area; (iii) rate of growth of HYVs area; (iv) rate of growth of irrigated area; (v) rate of growth of productivity; and (vi) impact of HYVs on productivity.

i) Historical Development of HYVs:

(a) The area under HYV paddy, wheat, jowar, bajra and maize was very low during 1966-67. In the latter period HYV area under all these crops increased substantially.

(b) Between the beginning of the study period, i.e., the annual plan period of 1966-69 and the end of the study period, i.e., the seventh plan period (1986-91), the average percentage share for HYV maize, jowar, bajra
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<th>Crop</th>
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<tr>
<td>1</td>
<td>Paddy</td>
<td>Panchmahals, Sabarkantha, Mehsana, Dang</td>
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<td>2</td>
<td>Wheat</td>
<td>Ahmedabad, Sabarkantha</td>
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<td>3</td>
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<td>4</td>
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<td>5</td>
<td>Maize</td>
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and paddy crops in total HYV area for all the five crops put together increased, while that for wheat declined. The average annual growth rate (GR) of area was higher in respect of HYV paddy, jowar, bajra and maize in the seventh plan period (the end period of this study) when compared with the annual plan period of 1966-69 (the beginning of the study period).

ii) Concentration of HYVs Area:

Comparative figures of the share of each crop for each district in the total cultivated area for the respective crops of the State and its corresponding share in the States the total HYV area for each district were worked out for the first period (1966-79), the second period (1979-91), and the whole period (1966-91) (see Table 5.3). The important observations emerging from these figures are detailed here below:

(a) In the first period (1966-79) in respect of wheat and jowar, the major districts put together claimed equal share both in State's HYV area and the State's total cultivated area, which was nearly 70 per cent in wheat crop and 90 per cent in jowar crop, but for other three crops, viz paddy, bajra and maize, there was wide difference in the share in HYVs and the corresponding share in the total cultivated area. For paddy, bajra and maize, the major districts lagged far behind in their respective shares of HYV area as compared to their respective shares of total cultivated area.
(b) In the second period (1979-91), out of the five crops only in respect of wheat, the two shares of the major districts (see Table 5.1), i.e. those in HYV area and total cultivated area exhibited equal shares, while for the rest four crops viz, paddy, jowar, bajra and maize, the two shares varied widely. The major districts in respect of bajra and maize obtained lower share in HYV area in comparison to the corresponding shares of total cultivated area, while the major districts in respect of paddy and jowar obtained higher shares of HYV area than the corresponding shares of total cultivated area.

(c) In the whole period (1966-91) in respect of wheat and paddy, the major districts claimed a larger share in HYV area than their corresponding shares in total cultivated area, while in respect of the rest of the three crops viz. jowar, bajra and maize, the major districts could not obtain their share in HYV area as compared to the corresponding shares of cultivated area. The minor districts obtained lower share in HYV area than the corresponding share of total cultivated area in respect of bajra, jowar and maize.

iii) Rate of Growth of HYVs Area:

During all the three periods under study with regard to rate of growth of area under HYVs in respect of paddy, wheat, jowar, bajra and maize some districts (see Tables 5.4 to 5.8)
consistently remained above the State average, whereas some districts remained below the State average. In the second period (1979-91) in respect of all the five major HYV foodgrain crops, some districts (Tables 5.4 to 5.8) witnessed a higher growth rate above the State average, whereas some districts witnessed a lower rate of growth in HYV area when compared to the first period. If we assume continuity in the observed trend, then all the districts witnessing a rising trend will continue to be above the State average and vice-verse.

iv) Rate of Growth of Irrigated Area:

The analysis of the rate of growth of irrigated area in the first period (1966-78) and in the second period (1979-88) in respect of all the five major foodgrain crops, i.e. paddy, wheat, jowar, bajra and maize, some districts consistently remained higher and above the State average, whereas some other districts remained below the State average (see Tables 5.9 to 5.15).

v) Rate of Growth of Productivity:

During all the study periods, the rate of growth of productivity in respect of paddy in Sabarkantha, in wheat for Banaskantha, Surendranagar and Kutchh, in jowar and bajra for Kutchh district; and in maize for 5 districts of Vadodara, Ahmedabad, Gandhinagar, Junagadh and Banaskantha was consistently above the State average. On the other hand, during all the study periods in case of paddy for Dang, Bhavnagar and Jamnagar, in
case of wheat for Panchmahals; in case of jowar for Surendranagar, Mehsana, Junagadh, Sabarkantha, Panchmahals and Kheda, in case of bajra for 5 districts viz., Rajkot, Jamnagar, Panchmahals, Surat and Valsad; and in case of maize for Panchmahals district productivity growth was consistently below the State average.

In the second period (1979-91) in respect of productivity of all the five major foodgrain crops, some districts (Tables 5.14 to 5.18) witnessed a higher growth rate above the State average, whereas some districts witnessed a lower growth rate below the State average when compared to the first period (1966-79).

vi) Impact of HYVs on Productivity:

To examine the impact of HYVs on productivity level, a regression equation between yield per hectare and the proportion of cropped area under HYV has been established separately for each crop for each major district with relatively larger share in the State's total area for the five crops under study.

The results of the regression analysis indicate that the State level out of five major foodgrain crops, the regression co-efficient were significant for rice, wheat and bajra, which means HYV is successful in respect of three, out of five crops. However, the extent of variations explained is low for all the districts, the results are not significant, and the districts for which the results are significant, the extent of variations explained were low. The figures of regression co-efficient seemed to be very low. All these facts pinpoint that HYVs are not
successful as they should have been. The possible weaknesses are:
(a) inappropriate types of HYV seeds, (b) inadequate and
inefficient use of strategic inputs such as fertilisers,
pesticides, electricity etc, and (c) inadequate and inefficient
use of irrigation etc.

5. POLICY IMPLICATIONS

The analysis on the development of HYVs in India attempted
in the study clearly reveals that even with the limited
availability of irrigation facilities, though the overall
progress is noteworthy, a number of bottlenecks came in the way
of still better adoption of HYVs in India in general and Gujarat
in particular. The bottlenecks observed are inadequate facilities
of transportation network, inadequate as well as inefficient
tention strategies etc. Therefore, to attain a higher level of
the spread of HYVs in the Indian agriculture a policy should be
framed in the direction of putting aside the growth
constraints. For the policy purpose the following issues may be
noted:

i) Concrete attempts should be made to improve the
overall availability of irrigation facility. Steps
required are:

(a) to rapidly develop the irrigation potential;

(b) to improve the nature of irrigation utilisation;
(c) to introduce appropriate water management practices particularly in respect of canal irrigation and, through it, to reduce the waste in the use of water and thereby to make it an economic one, and

(d) to introduce on a continuously wider scale the new methods of irrigation such as drip method, sprinkler method etc which make it possible economic use of water.

ii) There is a need for continuous efforts to effectively develop new varieties of seeds in respect of all important crops and attain their effective and rapid spread at farm level.

iii) Attempts should be made to adequately develop transport facilities in all the parts of the country so as to provide required types of seeds at the door steps of farmers; and

iv) The appropriate measures should be made to improve the prevailing extension service by making it active in dissemination work, disseminating at the earliest and in an effective way all the new innovations, if need be by strengthening its present personnel structure in all the parts of the country.
5.2 The study concludes that to attain a speedy spread of HYVs of all crops in Indian agriculture, concentrated efforts are required to be made in favour of the States constituting relatively higher irrigated areas.

5.3 From the study of the reasons put forth by farmers for not practising the scientific use of HYV seeds, the following policy measures can be suggested:

i) To expand the span as also the level of credit facility in the various parts of the country so as to bring expensive quality seeds to the doorsteps of farmers.

ii) To substantially improve and extend extension education system in the various parts of the country so as to bring awareness among farmers in respect of area to be covered by HYV, types of HYV seeds to be used, etc.

iii) To the extent possible adequate provision of HYV seeds for a variety of crops suitable to various agro-climatic conditions should be made available to all the different parts of the country.

iv) In order to solve the various problems of seed testing laboratories prevailing in the country the necessary measures may be taken up at the earliest.
7. POTENTIAL RESEARCH AREAS

In the light of the general as also specific observations made in the study, the following areas can be earmarked for future research in the field of economics of HYVs. These areas would help attain the optimum development of the HYV programme in Indian agriculture.

1) In respect of HYV programme in Indian agriculture, many policy measures were introduced to attain a better level of HYVs spread during the different plan periods. However, it has been found that these measures have been proved to be either inadequate, less effective or less consistent. With the prevailing drawbacks, these measures could not bring forth the expected growth in HYVs in the past. In this respect, a detailed enquiry of the following issues will prove to be of immense importance in the near future.

2. Forces behind a decline in growth rate of area of HYVs in respect of the concerned crops for concerned regions and for the concerned blocks in these regions can be ascertained. Problem oriented micro studies, if undertaken, would be of immense help in finding out the forces leading to a decline in growth rate.

2. It is pertinent to trace out the problems lying in extension activities practised by different extension agencies in the country viz, government, corporate and
co-operative sectors to attain the scientific use of HYVs at farm level. Necessary standards should be laid down.

3. The credit facility to farmers encourages the use of modern agricultural inputs including the use of HYVs. Hence, to decide the role of credit in raising the use of HYVs among farmers, a study needs to be undertaken to find out the role of credit in raising HYVs use among different parts of the country.

4. In order to support the present study, similar kind of studies needs to be conducted on similar lines in respect of other inputs like fertilisers, irrigation, credit, electricity, pesticides, etc to strengthen the base for policy measures.

5. Similar studies on other crops like oilseeds, cotton, may be taken up in Gujarat as well as for other States of India.

6. Subsidies for increasing HYV area of course have yielded positive impact in terms of the expansion of HYV area. However, it is very much pertinent to note that its occasional withdrawal in Gujarat as also in some States was found to have discouraged farmers to use HYV seeds in the past. Hence, a future query emerges as to what could be the magnitude of the fall in HYV area consequent upon a withdrawal of particular amount of subsidies in the various parts of the country.