

## **Chapter 7: The provision of inputs**

The high costs of cultivation and unstable crop prices have been among the important factors that have led to growing debts and distress among farmers. Agriculture in Andhra Pradesh is highly monetised, with a substantial proportion of inputs being purchased and therefore a greater reliance on sale of produce as well. The cost of inputs, that is seeds, pesticides and fertilisers, have made up a substantial proportion of cost of cultivation of crops. This is more pronounced among commercial crops. Apart from the cost dimension of inputs, the quality - in terms of sub-standard and spurious seeds and pesticides - has also figured as a proximate factor for the crop failures, given the drought conditions. This was also enumerated as the crucial risk factor linked to the distress of farmers.

Since the private sector is the principal supplier of seed and pesticides, the important issues relate to the regulation by the state of the dominant private sector and the possibility of the state providing alternatives to the farmers to ensure good quality inputs at reasonable prices, which could reduce the cost of cultivation. These issues of input provision and regulation are discussed separately with respect to seeds, fertilisers and pesticides.

### **I. Seeds**

The Department of Agriculture prepares and monitors seed production and formulates a supply plan to meet the seed requirements season-wise based on the normal and targeted cropped area. To supplement this plan, wherever necessary, contingency plans are prepared and seed supply is ensured, either from within or outside the state. As much as 90 to 95 per cent of the state seed requirements of cotton, sunflower and maize are met from the seed produced in Andhra Pradesh either by the private seed companies or government organisations. Apart from these, seeds of paddy, bajra, groundnut are supplied to needy farmers to the extent of 20 to 40 per cent of total requirements, either on subsidy or under general distribution. Andhra Pradesh (along with Maharashtra) is the most important supplier of seeds in

the country, producing 9 lakh quintals of certified seed varieties and hybrids, 2 lakh quintals of labelled varieties and more than 10 lakh quintals of private research hybrids. Further, some farmers' cooperatives produce and market paddy seed of notified varieties in the districts of Karimnagar, Warangal, East and West Godavari.

As the hybrid seed requirement has increased, the private sector has taken over the entire seed production and supply in the state. A number of seed producing companies, including multinationals, have entered the seed market in the state. Companies like Monsanto India Ltd., Pro Agro, Nuziveedu Seeds Ltd., Advanta India Ltd., Emergent Genetics Ltd., are now engaged in evolving new private hybrids of paddy, cotton, chillies and other vegetable crops. Monsanto has introduced transgenic cotton hybrid (Bt Cotton) in the state, and has been followed by Rasi Seeds and Nuziveedu Seeds. Thus, the private sector has emerged as the dominant player in the seed industry in Andhra Pradesh.

The field visits of the Commission revealed that farmers encounter a range of problems in seed purchase, which include the following: the untimely supply of the seeds; inadequate supply of seeds; supply of spurious seeds; supply of non-certified seeds; poor germination or low crop outputs; high cost of seed supplied by private sector, especially with regard to commercial crops; input suppliers including seed dealers acting as moneylenders and promoting inappropriate use such as excessive fertiliser or high cost seed.

In order to regulate seed quality, sale and distribution, the government promulgated the Seed Act, 1966, supplemented with the Seed Rules, 1968 and Seed (Control) Order 1983 under section 3 of the E.C. Act, 1955. However, in the changed scenario, especially when the private research hybrids have been introduced in large numbers, these legislations are not comprehensive enough to regulate the quality of the seeds. The government of India has initiated action to bring a new legislation on seeds, the Seed Act, 2002.

According to the provisions of the Seeds Act, 1966 (specifically Sec. 5, 6, and 7, the definitions of 'kind' under sub-section (8) and 'variety' under section (16) of sec. 2 of the Act), there does not appear to be any scope, legally speaking, to market a non-notified seed variety in paddy, cotton, maize and chillies. However, a number of non-notified private hybrids/varieties of these crops are being marketed over the last several years under the category of self-certified seeds subject to the permission of the Commissioner, Agriculture under the provisions of the Seeds (Control) Order, 1983, even though the provisions of that order essentially deal with the regulation of the trade in seeds and not quality or certification of seeds. The granting of such permission appears to be entirely based on the data and self certification being submitted by the applicant companies, without any further pre-testing by the department. In case it is held that sale of non-notified varieties or private hybrids is not prohibited by the provisions of the Seeds Act as they now stand, there is an urgent need to regulate this sector through legislation.

Another area which requires urgent attention is the lack of adequate penal provisions in the Seeds Act. This issue, however, again is closely linked with the above interpretation i.e. whether the unregulated sale of hybrid varieties is permissible or not in terms of the existing provisions of the Seeds Act. If a view is taken that the Act permits the production and sale of private hybrids without undergoing the monitoring prescribed in respect of notified varieties, even the existing penal provisions in the Act are not attracted for offences arising out of poor quality in private hybrids produced and marketed. So the legislation has to cover this area also.

There is a need to provide for deterrent punishment and also a liberal regime of award of damages in cases of failure of hybrid seeds. There is a need for specific provisions for awarding damages accompanied by a summary procedure for assessing and awarding such damages. The attempt to put in place some sort of an alternate redressal mechanism in the form of the MOU of seed companies with the Agriculture Department of the state government has not inspired much confidence among farmers. This is partly

on account of lack of statutory cover for the process and the consequent indifference shown by the companies, and partly on account of lack of full clarity and, rather, a conservative approach in the guidelines and procedure framed in the MOU. The data on the performance of MOU stands as a testimony to the fact the state government has not been empowered adequately through the MOU route.

Therefore the proposed legislation should attempt to cover all kinds of seeds; notified or non-notified that are marketed on a commercial basis and should provide for exemplary punishment and award of damages in case of non-compliance with the quality and performance guaranteed by the companies in respect of their seed. The approach should be in favour of the concept of strict liability, notwithstanding the attempts on the part of the companies to dilute their liability by putting forth the influence of variable factors like weather and other conditions that affect the crops. The legal provisions governing the minimum quality or assurance should be framed after a thorough consultation with scientists and experts, on the basis of a consensus. In other words, the minimum quality or assurance that is given in respect of a seed which is commercially marketed, and the civil and criminal consequences for any failure in fulfilling the said quality and assurance, should be very clear and the procedure for realising civil or criminal consequences for any failure in this regard should be made as simple as possible and time bound.

The commission has noted with approval that the Government has taken serious note of the problems faced by the farmers especially with reference to seeds, and has taken the initiative to enact a separate legislation to meet the requirements of the state independent of the existing Seeds Act 1966. The proposed new seed act of the state government has a number of pro-farmer provisions.

Table 1: Important Provisions of the Draft State Seeds Bill 2004  
vis-à-vis the Seeds Act 1966

<b>Provisions</b>	<b>The seeds Act -1996</b>	<b>The State Seeds bill-2004</b>
Authority for implementation of the Act	Central Seed Committee to advise the Central Government and the State Governments on matters arising out of the administration of this Act and to carry out the other functions assigned under the Act	A. P State Seeds Board responsible for the effective implementation of the Act and advise the State Government on the matters relating to Act
Composition	Chairman nominated by Central Govt. 8 persons nominated by Central Govt. to represent such interests as that Govt. thinks fit of whom not less than 2 from Seed Growers.  One person nominated by each State.	Chairperson – Secy. to Govt. Agril. Govt. of Andhra Pradesh Vice – Chairman – Commr. of Agril. Member Secy. – Chief Exe. in the cadre of Addl. DA Ex- officio members; Director of Research, ANGRAU. Commissioner of Horticulture Commissioner of Marketing Head of the Dept. of Bio-technology, ANGRAU. Director, A.P State Seed Certification Agency 7 Farmers representing the Agro-Climatic Zones. nominated by Government 2 form Seed Industry nominated by Government. 1 Specialists /Expert in Seed Development nominated by Government. 1 Representative from ICAR to be nominated by Government of India
Functions	Central Seed Committee is to advise the Central Government and the State Governments on the matters arising out of the administration of this Act and to carry out the functions assigned to it by or under this Act.  Power to notify kinds or varieties of seeds Power to specify minimum limits of germination and purity etc., Regulation of sale of seeds of notified kinds of varieties	In addition to the functions of National Seeds Board under Seed Bill- 2002, the State Board is also responsible for; (a) Regulation of production and sale of transgenic and genetically modified varieties by way of compulsory DNA finger printing test or genetic purity test. (b) Ensuring Payment of compensation to the farmers.
		Sec. 19 provides for the constitution of compensation Committee for each

		Agro-climatic zone separately.
Registration of Seeds of all kinds or varieties		<p>Registration of all kinds and varieties of seeds is compulsory</p> <p>Registration based on information furnished by Seed producers on the basis of multi-locational trials to establish agronomic performance.</p> <p>All notified kind and varieties under the Seed Act 1966 deemed to be registered.</p> <p>Non-notified kind and varieties which are in the market be given provisional Registration for three years and subsequent registration after confirmation of agronomic performance.</p> <p>Registration is valid for five years in case of annul and biennial crops and 10 years for long duration perennials.</p>
Accreditation for assessment of agronomic performance		The State Seed Board may accredit ICAR Centres, ANGRAU and such other organisations to conduct trials to assess agronomic performance
Seed Certification	Grant of Certificate by Certification Agency for any notified kind or variety	In addition to State Certification Agency (APSSCA), the certification will be done by accredited institutions by the Board. Working under ICAR, State Agril. University and such other research Organisations
	Certification is optional	Certification is optional Provision of self certification permitted
Offences and Penalties	<p>The gravity of the offences are not classified.</p> <p>No provisions for compounding</p> <p>Legal proceedings</p> <p>First offence with fine of Rs. 500</p> <p>For second offence with fine of Rs. 1000 or imprisonment of 6 months or both</p>	<p>Minor infringements</p> <p>Major infringements</p> <p>Minor infringements to be compounded as prescribed</p> <p>Legal proceedings</p> <p>For offence a fine Rs. 50000 which may extend to Rs. 1 lakhs or with imprisonment for a term which may extend to 6 months or both would be levied</p>
Compensation		If registered kind or variety fails to provide expected agronomic performance under such given conditions, the State Government or farmer may claim compensation
Transgenic varieties		Transgenic seed of kind and variety shall be registered with the clearance under the Environment (Protection) Act-1986 and confirm disclosed genome by DNA finger printing test

Pricing		The Board will appoint a Committee for fixation of price of seeds which will be valid for 3 years
Standardisation of Packing Seeds		The Board shall appoint a Committee to fix the standards of packing and Government may notify standards.

The state government has proposed a seed village programme based on selecting at least one potential village in a division to produce quality seeds of paddy, green gram, red gram, castor, and groundnut through multiplication from foundation seeds. However, the programme is confined to very few villages, and the budgetary allocations and the coverage are too low to create any serious impact and relief to the farmer. The tradition of farmers' own seed banks needs to be revived since it is possible for the farmer to grade good seed from her/his own field in respect of non hybrid seeds like paddy, pulses etc. Suitable extension in this regard is highly desirable.

The introduction of transgenic seeds such as Bt cotton in large areas under cotton cultivation in the state is reported to have mixed results. Farmers are not adequately informed either about the nature of the seeds, or the requirements for their cultivation, or the likely outcomes. Further, the produce from Bt and non-Bt seeds tends to be indiscriminately mixed, which can create a problem in some markets. The state government needs to take a more proactive role in analysing the experience and disseminating the results widely among farmers so that they are informed by an independent and objective source about all the costs and implications of using such seeds. This is likely to be a continuing issue as more transgenic seeds are introduced by seeds companies.

## **II. Fertilisers**

While fertilisers play an important role in improving agricultural productivity, with the advent of the green revolution, the application of chemical fertilisers has increased manifold. Indiscriminate use of fertilisers can have a deleterious impact on the soil health and productivity. Given the

growing problem of land degradation, it is necessary to safeguard this important resource in the interest of sustainable crop production.

Having got used to the application of inorganic fertilisers over a period of time and in the absence of adequate quantities of farm yard manure and other biomass based fertiliser, farmers have become highly dependent on chemical fertilisers. With the reduction in the fertiliser subsidy, the cost of fertilisers has increased many times over the last decade, adding to the farmers' woes. On an average, the fertiliser price has been increasing by 5 to 15 per cent every year for different kinds of fertilisers. Further, the depletion of micro-nutrients in the soils has meant that crop yields cannot be maintained without the application of more and more fertilisers. The absence of scientific soil health analysis cards and the application of fertilisers without relevance to soil needs has resulted in higher costs of cultivation without any marginal increment to the crop yield. Instead, it has only resulted in the deterioration of soil conditions, thereby affecting land productivity.

The problem with respect to fertilisers were not as acute as for pesticides, as noticed during our field visits. However the high cost of cultivation is a function of high doses of fertiliser application as well. There are some complaints of substandard fertilisers especially, micronutrients. The quality of fertilisers is controlled by the Fertiliser Control Order, 1985. The Commissioner and Director of Agriculture is the controller of fertilisers as notified by the Government of India, and functionaries in the state down the line carry out the regulatory responsibilities. While the Department of Agriculture has been exercising adequate control over the fertiliser industry and trade, there are still a large number of cases which are pending because action has not been initiated. There are 5 fertiliser testing labs in the state for analysing the samples collected by the agriculture officers and special squads.

While there appear to be not many major complaints with regard to complex fertilisers, there are sizeable complaints regarding the straight fertilisers such as super phosphate and micronutrients. The capacity of the

labs to test micro fertilisers appears to be inadequate. Even otherwise, the existing soil testing labs are reportedly not functioning for want of sufficient budget from the Marketing Department and absence of required manpower from the Agriculture Department

### **III. Pesticides**

The application of pesticides has become more essential to tackle the growing pest menace in the race to increase production using hybrid seeds and chemical fertilisers. Consequently, farmers have started using more and more chemical pesticides. However, they are not applying these pesticides judiciously and scientifically, due to inadequate or poor extension, inaccurate or misleading information provided by input dealers and others, or lack of awareness. Minor pests are becoming major pests over time, and pests are developing resistance to pesticides. As a result, pesticides with higher potency are entering the market every year.

The problems is especially acute in this state. Thus, farmers from Andhra Pradesh alone use as much as 35 per cent of the total pesticides consumed in the country, accounting for 40 per cent of the total annual expenditure of Rs. 4000 crores on pesticides per annum by all farmers in India. Indiscriminate use of chemical pesticides is leading to health problems of farmers and their families, air and water pollution, killing of beneficial insects, presence of pesticide residues in food products, rejection of export products worth Rs. 1000 crores per annum in international markets, and increased cost of production of crops. Chemical pesticides are essentially poisons which should be used sparingly at best in cultivation, and that efforts should be made to shift from an excessive dependence on chemical pesticides to more natural alternatives with less deleterious side-effects.

In the field visits, farmers reported a number of problems with respect to chemical pesticide use. These include the exorbitant cost of the pesticides; sudden increases in the cost of the pesticides within the Maximum Retail Price (MRP) range and sometimes beyond the MRP; artificial shortages

created for the high quality pesticides; dealers insisting that farmers must purchase some unwanted pesticides along with good quality pesticides; sale of pesticides by unauthorised/ unlicensed dealers; sale of spurious pesticides; and poor record of punishment of the cases booked.

Since the pesticides industry is in the private domain, the state must obviously focus on its regulatory role, to ensure the supply of quality pesticides to farmers. But it is also necessary for government intervention to go beyond that towards encouraging more sustainable forms of pest control, which implies developing and encouraging alternative mechanisms of pest management to reduce dependence upon chemical products, and contingency measures for pest control when it takes the form of an epidemic.

The central government has made legal provisions to regulate the private sector through the Insecticides Act, 1968, subsequent amendments made to this Act and the Insecticide Rules 1971, which were amended in 2000. The evolution of the Insecticide Act 1968 has an interesting historical background, since it emanated from a process set in motion by some cases of food poisoning due to the organo-phosphorous insecticide called 'Parathion' in Kerala and Tamil Nadu. This legislation therefore emerged from a situation which is totally unconnected to the current context. It was basically intended to protect human beings and cattle from either inadvertent or intentional misadventures by producers and retailers. The Insecticides (Price, Stock Display and Submission of Reports) Order, 1986 does not concern itself with quality or standards of the insecticides offered for sale but confines itself only to the display of prices or rates, quantities of stocks held, issue of cash/credit memorandum, maintenance of records, submission of returns etc. Therefore, for violation relating to quality standards in insecticides, the Insecticides Act 1968 is relevant. It is comprehensive in dealing with standards and misbranding etc. and a whole host of other procedures including revocation of licenses, and provides the Insecticides Inspector with considerable powers of search and even to stop distribution, sale or use of insecticides if so done in contravention of the Act. Unfortunately, however, the wording relating to

punishments Under Section 29 in this Act is so light as to make the punishments.

The regulatory authority of this legislation had been vested in the hands of the Central Insecticide Board, of which the Director-General of Health Services is the *ex officio* chairman. Interestingly, senior officials of the Ministry of Agriculture have been left out of the regulatory board, although at the state government level, the Department of Agriculture has been made the overseeing authority.

The responsibility for enforcement of the legislation is divided between the central and state governments. The Government of India is responsible for policy decisions, for granting of registration for manufacture as well as for the import and export of pesticides, while enforcement in the field is the responsibility of the state government. The administrative department at state and district levels has been carrying out various activities in order to check the malpractices in the trade.

There are a number of problems with the system which became apparent in the field visits. The number of samples taken in the present set up is very small compared to the volume of pests sold in the markets, and this is related to the inadequate capacity of the existing pesticide testing labs. There have been complaints that some of the dealers have been charging the farmers at different prices within the MRP ceiling. There are also some reports of selling the pesticides beyond MRP. A number of farmers have represented that adequate compensation should be given to the farmers whenever they have suffered crop losses on account of spurious pesticides.

There are visible gaps in extension especially in the matters relating to proper application of pesticides, despite the efforts of the Agriculture Department in reaching farmers through its field extension agencies. The recommendations of the companies as well as the department, regarding the dosage of pesticide, periodicity of application, timing of application and actual procedure for application are often not followed by farmers and farm workers.

This results in wastage of resources, development of resistance in the pests to chemicals and unnecessary increased cost of cultivation.

Various inadequacies in the implementation of the Act, such as the absence of inadequate regulatory mechanisms in the Act, delays in obtaining the results from the pesticide testing labs, the absence of follow up in the criminal cases and the liberal attitude of the courts in imposing penalties even in respect of proven cases, have encouraged the pesticide trade and industry to become complacent and exploitative.

Integrated Pest Management (IPM) is an alternative mechanism formulated by the government to manage pest and sustain agriculture production. As pointed out above, indiscriminate and excessive use of pesticides has resulted in several adverse effects like pest resistance to pesticides, pest resurgence, pesticide residues and associated health hazards, destruction of natural bio-control fauna, ecological imbalance and environmental pollution and also greater human health hazards, besides significantly increasing the cost of cultivation. Integrated Pest Management (IPM) has been adopted for sustaining agricultural production, maintaining quality of agricultural produce and for protecting environment. IPM means a pest management system that in the context of the associated environment and the population dynamics of the pest species, utilises all suitable techniques and methods in a compatible manner and maintains the “bad” pest population below the economic threshold level. Capacity building programmes have been organised for the farmers to educate them regarding IPM and other natural methods of pest management, and about how to prepare the basic materials. But the Commission’s interactions with farmers and the budget allocations made to build the capacity of the farmer both reveal that IPM suffers from inadequate coverage of farmers

While there are many cases of success in IPM, such practices have not been adapted universally, despite some very impressive success stories such as those of Pudukkula and neighbouring villages in Khammam district. The extension of these practices is not obviously adequate, keeping in view the

varied farming systems and wide range of types of pests and diseases occurring. Farmers across Andhra Pradesh have adequately demonstrated in their own villages that it is possible to manage the pests by utilising locally available plant materials such as neem extract and other natural pesticides, that this leads to dramatic reduction in pesticide costs and can be associated with increased and healthy output, especially in pest-prone crops such as cotton. Such experiences and the techniques employed need to be widely disseminated across the state.

#### **IV. Recommendations:**

**1. The Commission strongly feels that the state government should be the prime supplier of all types of inputs required by the farmer. This calls for revitalising the earlier institutions of production and delivery of seeds and effective regulation of fertilisers and pesticides.**

2. The government, if necessary, should use the provisions of Essential Commodities Act for requisitioning the inputs and sell them through departmental outlets both in the pesticides and fertilisers.

3. Field officers need to be trained in the effective implementation of the statutes relating to agricultural inputs.

4. Input dealers should have some relevant educational qualifications.

#### **Relating to seeds:**

**1. The A.P. Seed Corporation should be revived, along with all its regional production units. This involves the following:**

- **All government production farms and nurseries shall be revived to produce quality seeds. The required infrastructure, manpower and budget need to be supported by the state government.**

- **All the type of seeds required by farmers should be produced or procured and sold through the Mandal level depots under the overall responsibility of Mandal Agriculture Officer. However, exclusive clerical staff should be made available to manage depots.**
- **There is a need to look into the functioning of the Seed Corporation and prevent controversies with respect to corruption and misuse. Only officers of proven integrity should be posted as the head of the organisation.**

2. Farmers have complained about the quality and late distribution of publicly supplied seeds such as for groundnut. This issue needs to be addressed to adequate and timely delivery of subsidised seeds. In addition, public provision of seeds and seedlings should be initiated for certain horticultural crops, such as papaya and mango.

3. While the proactive initiatives taken by the government would definitely have a positive impact on seed supply and quality, it is still necessary to put in place the appropriate infrastructure for testing seed quality to ensure that the provisions of the Seed Act are met. The DNA finger printing laboratory exclusively to establish varietal characteristics, for which the funds have been provided, may be established at the earliest..

4. The composition of the authority for implementation of the proposed Seeds Act, in addition to the Director, Research, ANGRAU, should include the Director of Extension., ANGRAU.

5. The coverage under the seed village programme must be enhanced substantially to enable the programme to have a serious impact and provide relief to the farmers.

6. The tradition of farmers' own seed banks needs to be revived, with appropriate incentives as well as systematic extension work. The structure of

incentives may involve special and subsidised access to inputs. A state level committee should be constituted for this purpose involving the Department of Agriculture, ANGRAU, and private and public seed agencies, to assess the production and storage of seeds of specific varieties; the availability of breeder/foundation seed; and financial assistance for storage, carrying costs etc.

7. The state agricultural university should be represented in the Genetic Engineering Approval Committee of the central government, which approves transgenic seed varieties, to prevent inappropriate varieties from being released.

8. The experience with respect to Bt cotton and other transgenic seeds must be studied carefully and scientifically by ANGRAU using independent and objective scientists, and the results of the study as well as other available information regarding the costs involved and the experience with such seeds should be widely disseminated among farmers.

#### **Relating to fertilisers:**

**1. In view of the negative impact of chemical fertilisers, an aggressive strategy for a paradigm shift in fertilisers policy is required. The state government should consciously promote and facilitate the production and usage of bio-fertilisers, vermi composting, green manuring and other eco-friendly fertility enhancing activities. This needs to be done in mission mode. This will require**

- **special budgetary allocation, so that the incentives that are built into chemical fertilisers may also be diverted towards promoting organic fertilisers at state level,**
- **extensive dissemination and training through the extension services,**
- **a package of incentives for farmers may also be incorporated in the fertiliser policy.**

2. There is a need to step up the vigilance and quality assurance mechanism. It is understood that an exclusive Director looks after the quality and vigilance of various inputs like seeds, pesticides and fertilisers in Tamil Nadu. A similar mechanism or modified version of that may be considered in Andhra Pradesh.

3. In view of the increasing importance of application of micronutrients, it is necessary to set up laboratories to analyse the micro-nutrient status of the soils at district level exclusively, while the Divisional Level/AMC level labs may continue with soil analyses for NPK. The state government has already proposed 17 new labs in the premises of soil testing laboratories. The Commission strongly recommends the early establishment of these labs.

4. A comprehensive laboratory facility for testing the soils may be established at all agricultural division-level headquarters for basic soil analysis. At mandal level, the Agriculture Officer may act as the collection centre.

5. The present procedure of collection of soil samples, their analysis, reporting mechanism and adoption of the recommendations by the farmers need to be looked into by engaging a special study team to suggest methods for the proper utilisation of soil testing facilities and specify any need for modification of the procedures. This will also require budgetary support.

#### **Relating to pesticides:**

**1. Special emphasis on IPM and natural pest management:** In view of the serious negative impacts on account of chemical pesticides and insecticides, the government should change its policy towards promoting the best management practices of natural pest management. Special incentives may be built into such practices so as to discourage the farmers from using chemical pesticides wherever possible and bring them back to pesticide-free agronomic practices. This must be implemented in mission mode.

2. There is a need to amend the Insecticide Act, 1968 and suggest severe punishments to the persons responsible for the sale of spurious or unauthorised pesticides. In the interim, the state government should bring in a comprehensive order under the Essential Commodities Act, 1955 that extensively covers all aspects of manufacture, supply and distribution of insecticides such as their quality, prices and all other associated aspects relevant to the protection and welfare of the farmers.

3. There is a need to increase the number of pesticide testing labs at least at the rate of one testing lab for each district in the state along with adequate technically qualified manpower and budgetary support for sufficient latest infrastructure and maintenance costs.

4. While emphasising a shift to more natural pest management among farmers, the government must still play a role in the distribution of pesticides along with other inputs. To ensure prices and quality, some amount of pesticides may be purchased by Agro-Industries Corporation or by MARKFED and distributed at fixed prices through government agencies such as market committees or notified shops including agri-business service centres which government intends to establish through self employment programmes.