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(A Geographical Study)

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CP398

THIRTY TWO

Hetty Verhagen and
P. Parthasarathy Rao[1]

Marketing of Commercial-Farm Inputs in Semi-Arid Tropical India

Introduction

In the Semi-Arid Tropics (SAT) of India most farmers are using very limited amounts of commercial inputs, especially in non-irrigated areas. The use of commercial farm inputs in India is relatively recent. After 1966, high-yielding-varieties became popular and trade in fertilizer, pesticides and seeds became more important.

The main purpose of this study is a. to describe the channels through which fertilizer, pesticides and seeds flow from the manufacturers to the farmers, and b. to find out whether there are constraints in these supply channels which are responsible for the low input use.

The paper is divided into two sections. The first section deals with the description of the marketing channels for deals with the description of the marketing channels for fertilizers, pesticides and seeds, government policy concerning these inputs is also briefly discussed. The existing problems in the delivery system of these inputs are highlighted as observed during the course of this study at the All-India level. In the second section the extent of utilization of commercial inputs at farm level in three villages in three different zones of the SAT India are compared. The problems faced by the farmers in procuring the inputs are analyzed.

Description of Channels

In the fertilizer trade three different channels can be distinguished (1) private, (2) Cooperative, and (3) government channel. Fertilizers have been declared as an essential commodity and since 1967 Government intervention is more and prices are fixed by the government. The government channel in fertilizer trade grows in importance during times of scarce. Fertilizer supplies. The functioning of the fertilizer market is hampered by some problems arising due to market control. There are problems of transport and storage owing to seasonal demand of fertilizers. The government allocation policy based on demand forecast creates imbalances in supply and demand leading to speculative fertilizer prices. The fertilizer pricing system has led to huge government subsidy. The distribution margins in fertilizer trade are low and hence dealers resort to some malpractices.

Government intervention in pesticide trade is less as pesticides have not been declared essential commodity, Four different channels can be distinguished (1) Private, (2) Cooperative, (3) State Government channel, and (4) National Government Channel. In the seed trade quality control is important. There is not enough knowledge of he market and proper coordination is required between the different organizations dealing in seeds.

Utilization of commercial inputs at Farm level

The three villages-- Shirapur, Kanzara (Maharashtra state) and Aurepalle (Andhra Pradesh)--considered in this study are part of ICRISATs village level study. It is found that in all the three villages fertilizer use on non irrigated land is low. Among the non irrigated crops HYV sorghum and cotton receive some fertilizers in kanzara. The value of pesticide use per hectare is low in all the villages, except for commercial crops in Kanzara village. In all the villages farmers generally go to the nearest town to buy inputs. Most of the farmers in Kanzara village buy their fertilizer from Cooperative Societies unlike in Aurepalle where farmers go to private shops. In all the villages farmers reported some shortages particularly on complex fertilizers. Prices of fertilizers fluctuate with private dealers; but cooperative societies and government godowns charge the

government fixed prices. In all the villages farmers buy pesticides mostly from the private shops. There is no major shortage on pesticide supply in these villages.

Commercial input use in Indian agriculture is relatively recent. Prior to 1940, fertilizer use was negligible and was confined to plantation and commercial crops. Widespread use of pesticide in the Indian agriculture started around 1948, after the Bengal famine, which brought into the light the importance of pesticide in the field of agriculture. However, the quantities used was negligible. A new agricultural strategy in 1966 saw the introduction of high yielding varieties (HYV) of seeds first for wheat and then for rice and other coarse cereals. Compared to the traditional method of cultivation, in the new agricultural strategy crops were found to be more responsive to fertilizer and to be also more susceptible to pest infestation.

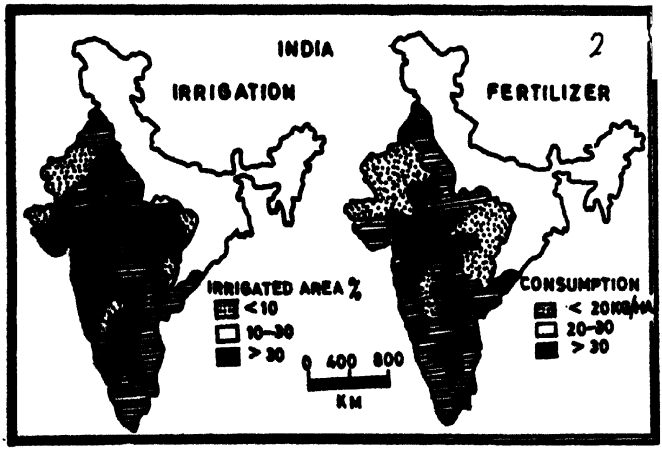
With the increase in area under HYV of food crops there was a considerable increase in the demand for both fertilizers and pesticides. The new strategy envisaged massive imports as well as expansion of domestic fertilizer and pesticide production capacity. In Table-I, the increase in the use of fertilizer pesticide and HYV-seeds over time is shown together with imports. This process led to 'monetarization' of the Indian agricultural sector. Farmers started growing crops for the market and consequently came into closer contact with commercial farm inputs. In the changed environment the marketing channels for commercial farm inputs gained importance. Timely supply of adequate quantities of different types of fertilizer and pesticides, availability of transport and storage facilities, reasonable prices and government policies became the focus of discussion since they determined the proper use of available inputs.

Nearly two-thirds of India's cropped land falls in the semi-arid zone of which less than one-third has well-developed irrigatiion resources. The non-irrigated semi-arid tropics (SAT) cover nearly 12% of India's cropped area and 65% of that in the Indian SAT. This area is mainly spread over Madhya Pradesh, Maharashtra, Gujarat, eastern Rajasthan, central Andhra Pradesh and Karnataka as can be seen in Figure 1. From the figure we find that fertilizer use and extent of irrigation are closely relate.

Thus commercial input use in not equally spread throughout India both in terms of area covered and quantities used. It is important to determine the cause of the difference between optimal and actual input use. Risk aversion, lack of knowledge, lack of labour, money and credit constraints, or lack of labour, money and credit constraints, or lack of timely availability are seen as main reasons for non-optimal input use.

In this study we investigate how far the functioning of the input market is a constraint for farmers in obtaining the commercial inputs such as fertilizer, pesticides and seeds particularly in semi-arid areas of India.

FIG. 32.1



The aim of this study is to:

A. Describe how markets for inputs are operating in India.
B. To identify which of the inputs are facing constraints of wh types.

In the first section of this study the functioning of the fertilizer, pesticide and seed market in India is described. While discussing the channels for these inputs government policies on pricing, subsidy, al-

location, imports, promotion, etc. are highlighted. The existing problems in the delivery system of these inputs are discussed with a view to improving the efficiency of the existing marketing channels so farmers will have better access to these inputs.

In the second section the extent of utilization of commercial inputs at farm level in three villages of three different zones of the SAT India are analyzed.

TABLE I : PRODUCTION AND IMPORTS OF FERTILIZERS, PESTICIDES AND CERTIFIED/ QUALITY SEEDS IN INDIA OVER TIME

	Fertilizer		Pesticides		Certified/quality Seeds	
	Consumption N+P+K 000 tonnes	Imports N+P+K 000 tonnes	Production 000 tonnes	Imports 000 tonnes	Production 000 tonnes	Imports
1955-65	130.8	na	na	na	na	-
1965-66	784.6	na	13.9	12.1	na	-
1975-76	2893.7	1635.0	34.3	15.3	na	-
1980-81	5516.0	2759.0	43.3	4.3	218.6	-
1981-82	6067.0	2042.0	48.7	3.7	241.8	-
1982-83	6418.0	1131.7	na	na	366.1	-
1983-84	7710.0	1355.7	na	na	512.7	-
1984-85	8374.0*	3597.3*	58.4*	1.4*	705.6*	-

* Estimated figures; na = applicable
Source: various reports

The Fertilizer Marketing

The Structure of the Fertilizer Marketing Channels

Currently fertilizers are marketed through three different channels the private channel, the governmental channel and the cooperative channel. Fertilizer is handled by private companies in the private channel. In the governmental channel the fertilizer is sold from government godowns at taluka or block level and in the cooperative channel cooperative societies at various levels are distributing fertilizer through retail outlets Figure 2. The importance of the three channels differs from region to region as seen from the number of sales points for the different channels in Table-II. In the eastern and southern states the private channel is very strong.

FIG. 32.2

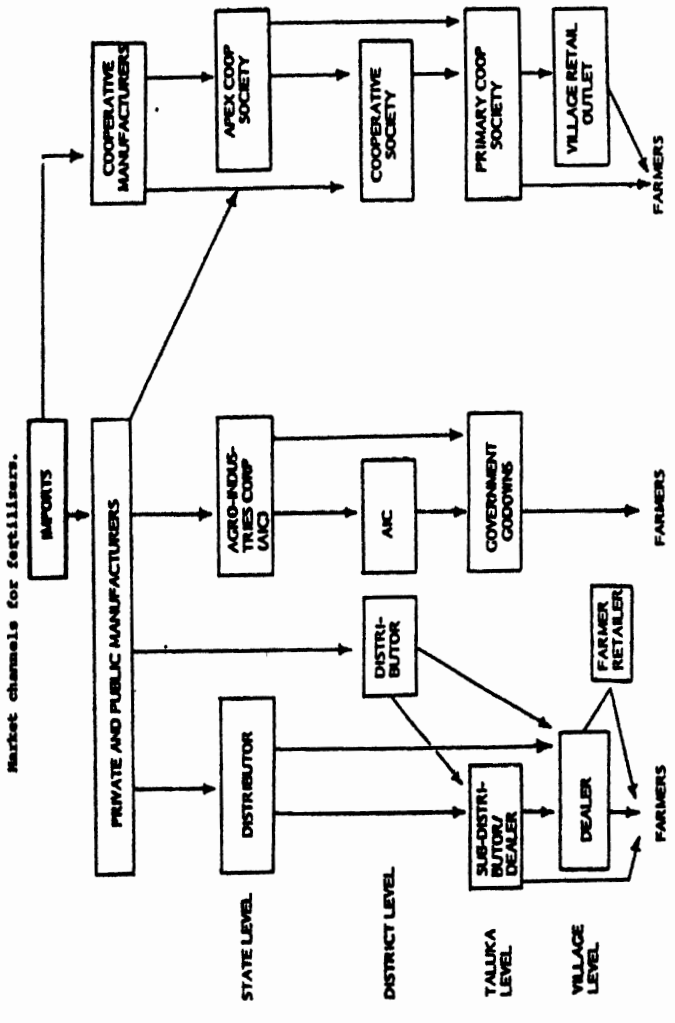

Market channels for fertilisers.
IMPORTS
PRIVATE AND PUBLIC MANUFACTURERS
COOPERATIVE MANUFACTURERS
APEX COOP SOCIETY
COOPERATIVE SOCIETY
PRIMARY COOP SOCIETY
VILLAGE RETAIL OUTLET
FARMERS
AGRO-INDUSTRIES CORP (AIC)
AIC
GOVERNMENT GODOWNS
FARMERS
DISTRIBUTOR
DISTRI-BUTOR
FARMER RETAILER
SUB-DISTRI-BUTOR/ DEALER
DEALER
FARMERS
STATE LEVEL
DISTRICT LEVEL
TALUKA LEVEL
VILLAGE LEVEL

TABLE II : THE NUMBER OF FERTILISER SALES POINTS, CROPPED AREA SERVICED AND CONSUMPTION PER SALE POINT IN DIFFERENT REGIONS OF INDIA (AS ON 31-3-1984)

Region	Coop. and other institutional agencies		Private outlets		Total sales	Gross cropped points	$N+P_2O_5+K_2O$ consumption area/ sale points (ha)	$N+P_2O_5+K_2O$ consumption per sale point (tonnes)	$N+P_2O_5+K_2$ per unit of cropped area (ha)
	No.	Percent	No.	Percent					
Central	18939	53	16600	47	35539	38077	1980	68.8	34.6
East	6013	16	32064	84	38077	13371	966	24.2	24.3
North	8158	61	5213	39	13371	40277	1221	119.9	98.1
South	11981	30	28296	70	40277	18553	842	54.6	64.8
West	10188	55	8365	45	18553	145817	1900	70.3	37.0
All India	55279	38	90538	62	145817		1325	59.6	44.9

Source: 'Fertilizer Statistics' 1983-84. Fertilizer Association of India.

In the northern states of India where dealers have to cope with many logistical problems the cooperative and government channels are important. These figures for different states in India are given in Appendix Table-I.

The gross cropped area per sale point is 1325 ha on average. It is around 1900 ha in central and western India and only 842 ha in southern India. The N+P O +K O consumption per sale point is 59.6 tonne on the average and varies from 120 tonne in northern India to 24 tonnes in eastern India.

The Private Channel

In the private channel fertilizer flows from private and public manufacturers through distributors at wholesale level and dealers sub-dealers and farmers-retailers at retail level to the farmers. the prices and margins are fixed by the government.

The fertilizer is sold to the distributor at the wholesale price, that means consumer price minus distribution margin.

The manufacturers as well as the distributors give off-season rebate and quantity rebates for several products. The rebates differ from product to product and situation to situation,. It would be interesting to know that 23 different fertilizers pass through the distribution network. They consist of stright as well as complex fertilizers. The productwise distribution pattern differs from state to state depending upon cropping pattern and soil type.

Most of the distributors, dealers and farmers prefer to buy fertilizer on credit. There should be sufficient distribution credit for fertilizer trade to buy and stock fertilizers before the season and production credit for the farmers to purchase them. The main sources of credit for distributors are commercial banks and the fertilizer manufacturers.

For farmers the sources of credit are commercial banks, cooperative banks, government loans, local moneylenders and friends or relatives.

he Government Channel

In the government channel fertilizer is sold to the farmers in overnment godowns at taluka or block level. The importance of this hannel varies from state to state dependent on the interest and the ıanaging capacity of the people in charge and on the need for ublic fertilizer sale because of lack of private traders dealing in fer-lizer.

The government channel is also important because the private :hannels are mostly concentrated near the rail lines and are not ;pread in the interior areas.The recent government policy to intro-luce block delivery system whereby transport charges are paid upto he block level is aimed to overcome this shortcoming in the present listribution network.

The government channel grown in importance during ties of scarce fertilizer supplies. Under such circumstances every farmer is only allowed to buy a fixed quantity of fertilizer depending on his cultivated area.

The Cooperative Channel

Cooperative societies at State, district, taluka, block and village level are set up to take care of the farmers, interest, There are cooperative societies for marketing, storage, processing and financ-ing. Some of them deal with only one aspect and others deal with more than one., It was the government policy to encourage coopera-tives in the distribution of fertilizers. There are a few fertilizer units in the cooperative sector also. Since cooperatives handled several ac-ivities like lending, purchase of farm output etc. this was a right itep. In case of a cooperative marketing society which handles crop)utput as well as inputs, farmers can buy fertilizer on credit and nay after harvesting with their produce. In other cases farmers can loans from cooperative banks, The size of the loan depends upon he land they own. In most of the cases 2/3 of the loan is in cash and /3 is in kind that means for 1/3 of the loan they can banks charge 2%interest a year, while commercial banks charge 15 to 18% inter-

The committee on fertilizers in 1965 felt that the cooperati lacked marketing experience, and owing to inadequate distributi margin, fertilizer distribution has in many cases been a moneti drag on the cooperative system. It thus did not want to overburd the cooperatives, and hence suggested a multi-agency approach f fertilizer distribution system.

However, cooperatives still constitute an important outlet for fe tilizers with about 45% of the total fertilizers consumed being di tributed by this channel, Table-III.

Government regulations of fertilizer trade

The Indian government intervened in the fertilizer market to en courage its more widespread production and use. Fertilizers wer declared essential commodities through the Essential Commodit Act/Fertilizer Control Order in 1967. This implies that allocation fertilizers, quantity to be imported, and all the prices and distribu tion margins in the fertilizer trade are fixed by the government. Al distributors and dealers in fertilizer are obliged to have a licence t sell fertilizer which is issued by the District Director of Agriculture The government also has lain down some strict quality contro measures under Fertilizer Control Order for all the indigenously manufactured products., Government officials check quality o products in the field by taking samples at dealer outlets and storage points. In case of proven malpractices the persons responsible lose their license and are condemned.

Allocation policy

The imported as well as the indigenous fertilizer is allocated by the government in biannual zonal conferences. These meetings are attended by experts of the Ministry of Agriculture, the Ministry of Fertilizer and Chemicals, representatives of fertilizer manufacturers of the FAI owned departments of Agriculture of the different Sta in the zone,. While making the allocation plan, care has to be tal that one region is not dependent on the supplier only and one manufacturer should not be dependent on the fertilizer consumption of one region only. There should be enough competition among the different manufacturers of important inputs.

Table III : DISTRIBUTION OF FERTILIZERS BY COOPERATIVE SOCIETIES IN INDIA FROM 1978-79 TO 1983-84.

Years	Total consumption NPK ('000 tonnes)	Fertilizers sold by cooperative societies NPK ('000 tonnes)	% of total consumption
1978-79	5117	2150	42.0
1979-80	5265	2350	44.7
1980-81	5516	2530	45.9
1981-82	6067	2867	47.3
1982-83	6387	3016	47.2
1983-84	7792	3375*	43.3*

Source : AnnualReport 1983-84, National Cooperative Development Corporation.

Estimated.

rtilizer Pricing System

Fertilizer prices are controlled by the government since 1944. The prices of statutorily controlled fertilizers have not been revised for the last two years since June 29, 1983. when they were brought down from the 1981 prices,. This has led to an increase in government subsidy., The trends in fertilizer prices during the last two decades reveals that these have been consistently kept at fairly low levels. Table-IV illustrates this trend for urea from 1979 onwards.

The fertilizer pricing system in. India has evolved round two broad objectives to induce increased consumption of fertilizer which (apart from other inputs) in turn, enables increased foodgrain production and at the same time encourages growth and efficiency in the Fertilizer Industry to meet the increasing demand. The Government of India introduced the Retention Price Scheme (RPS) for nitrogenous fertilizer in November 1977 and for complex fertilizer and TSP in February 1979 based on the recommendation of the committee.

Distribution margins

Not only the consumer price and retention price is fixed by the government but the distribution margin as well. The distribution margins and prices for urea from 1956 till 1983 are given in Table-V.

The governmennt allows a higher margin for cooperative societies since 1981. The distribution margin in Rs/tonne has increased during this period but the margin as a percentage of the consumer price shows a slight decline

Shortage and Transportation

The fertilizer companies are patronising the public warehouses who are providing a package of services at known costs throughout the country. The public warehouses are run by the Central Warehouse Corporation and the State Warehouse corporation. Fertilizer is transported from the factories to the warehouses in the different states mostly by rail. Seventy per cent of the fertilizer transport (in tonnes/km) goes by rail, 28% by road and 2% by water.

Storage and Transportation

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The Government of India reimburses the manufacturers the transport costs from the factory to the warehouse. Transport costs are pooled for price equalization policies. In the early stages of fertilizer use it is good to equalize transport costs so that farmers far price equalization policies. In the early stages of fertilizer use it is good to equalize transport costs so that farmers far from manufacturing centres are not at a disadvantage. The recently introduct Block Delivery System where transport costs are reimbursed up the block level is to encourage retail outlets in interior areas also.

The transport costs from the distributor to the dealers is not subsidized by the government. Sometimes, the distributor pays it partly or completely but mostly the dealer is responsible for these costs. In

most of the cases the farmers transport the fertilizer by bullock cart or by bicycle to his farm.

TABLE IV : THE AVERAGE COST OF IMPORTED UREA AT THE FARM GATE, THE AVERAGE COSTS OF INDIGENOUS UREA (AVERAGE RETENTION PRICE PLUS EQUATED FREIGHT) AND THE MAXIMUM SALE PRICE EFFECTIVE FROM VARIOUS DATES.

Year	Average cost Rs/tonne of Imported urea	Indigenous urea	Max.sale price Rs/tonne	Effective from
1979-80	2194	1848	1450	10-3-79
1980-81	2731	2016	2000	08-6-80
1981-82	3026	2541	2350	11-7-81
1982-83	2768	2909	2150	29-6-83

Source : Pratap Narayan, 'Dynamics of price and subsidies in fertilizers -- Indian experience. Fertilizer News, Vol. 8, No. 8, p.21.

Promotion

Fertilizers use in India is still low and many farmers use far less than the recommended doses. Many farmers are not fully aware of the advantage of fertilizer use, so promotion is a very important means to raise fertilizer consumption and increase the agricultural output. The burden of fertilizer promotion invariably falls on the government although it is the joint responsibility of manufacturer, and distributor. Private manufacturers may not be in a position to take initiative on their own.

Promotion is done by the Ministry of Agriculture through village extension workers and by the fertilizer manufacturers. All the public cooperatives as well as the private manufacturers do have an intensive fertilizer promotion program., The Ministry of Agriculture reimburses the expenses they make on the extension programs. These promotion measures should be understood by the farmers and should not only created an awareness in them but also induce a desire to use fertilizers. Simple and easy to follow messages should be putforth. The promotion programs consist of: posters; video films; radio programs; newspaper advertisement, farmers meetings, field days; crop seminars;

supply of minikits; village adoption programs; district adoption programs.

Table V : THE DISTRIBUTION MARGIN FOR UREA FERTILIZER.

Effective from	Distribution margin (Rs/tonnes)	Urea Price (Rs/tonnes)	Margin as % of urea price
1-2-1966	70	680	10.3
1-4-1967	80	840	9.6
1-4-1968	80	860	9.4
17-4-1969	80	946	8.5
9-3-1971	80	923	8.7
17-3-1972	80	959	8.4
1-10-1973	80	1050	7.7
1-6-1974	80	2000	4.0
18-7-1975	115	1850	6.3
16-3-1976	115	1750	6.6
8-2-1977	115	1650	7.0
12-10-1977	115	1550	7.5
10-3-1979	115	1450	8.0
8-6-1980	115	2000	5.8
11-7-1981	115	2350	4.9
13-11-1981	140* 120**	2350	6.0 5.1
20-5-1983	150* 130**	2350	6.4 5.5
29-6-1983	150* 130**	2150	7.0 6.0

Source : Naryana, B.L., Fertilizer Distribution Margins Fertilizer Marketing News, Vol.16, No. 10.

* For institutional agencies. ** For private dealers.

Evaluation of Fertilizer Trade

Fertilizer marketing as can be seen is a complex problem involving price regulation, efficient use of transport network to keep down costs and to provide fertilizers at same cost to distant places also, keeping a watch on storage costs to minimize wastage on space, and finally fertilizer promotion activities. To requlate and control a market satisfactorily without using the price mechanism is very difficult especially is a huge and diverse country like India. There ar many difficulties at all levels in the marketing channels.

Seasonal demand of fertilizers

Although fertilizer production is regular throughout the year the

pnsumption is not. Most of the farmers buy the fertilizer just before pplication because they do not have cash or do not get credit to buy ertilizer in advance. Farmers also do not have storage facilities and nder dry land conditions the level of fertilizer use largely depends n the rainfall received just before sowing,. The peaks in the fer-ilizer consumption causes lost of problems because of lack of suffi-ient transport and storage facilities.

)emand Forecast and Allocation Policy

The government allocation policy between states leads to pockets of scarcity or surplus thus generating black market prices. Forecast-ing fertilizer demand is crucial since imports are based of the forecast of demand. Any substantial deviation from the actual of-'-: leads to shortages of glut in the fertilizer market. It is for all lizers or for a particular type. This leads to the problem of shortages within a state and fertilizers are transported from low consumption districts to high consumption districts at premium prices.

Pricing System

The Retention Price Scheme (RPS) is a drag on the government exchequer since government has to maintain inefficient units by sub-sidizing their production. In recent years the government subsidy on fertilizers has been increasing. In 1982-83 the total subsidy on im-ported and domestic fertilizer was Rs. 6480 million. During the last two decades the consumer prices of fertilizer have been consistently kept at fairly low levels while this may be good the better off farmers take advantage of this rather than the small farmers.

Inspite of such huge subsidies the paddy/urea price ratio is very low in India (0.52), which means fertilizer prices are still high from mers point of view. The fertilizer subsidy scheme is very costly d it can cause problems in the future.

Distribution Margins

The margins for fertilizer trade in India are very low which stimulate malpractices in the private channel. The consumer prices

of fertilizer are fixed by the government but in time of shortage prices will rise on the black market. In times of surplus prices will be lower than the government fixed prices. Distributors and dealers sometimes create a shortage to raise the prices artificially. Another malpractice common in the private channel is that the bags are damaged on purpose and contain less than the original quantity. Fertilizer is sold in 40 or 50 kg bags only but in some villages dealers sell small quantities ranging from 5 to 30 kgs. The prices they ask in such cases are higher than the government fixed prices.

Promotion and extension

Promotion and information on fertilizer use are very important to raise fertilizer consumption and increase the agricultural output.

The farmers come in direct contact with dealers (retail out and not with the manufacturers or distributors. Hence, it would be ideal if every dealer is in a position to give proper advice to farmers on fertilizer use. However, the situation is different, most dealers have little technical knowledge about fertilizer use and farmers generally cannot trust their advice. Dealer training programmes on agricultural input use should be taken up on a priority basis.

Farmers Choice of Direction Channel

The decision in which of the three channels a farmer buys fertilizers is based on many considerations. Normally, farmers buy fertilizer in the nearest shop but reasons to go to other shops can be numerous, for instance, lower prices, better terms for credit, better availability, special relationship with a dealer etc. Government godowns mostly have limited stock and farmers are not always able to buy the type of fertilizer they prefer.

In the private channel the prices fluctuate slightly with the demand but in cooperative societies fertilizer is always sold at government fixed prices. In times of shortages farmers prefer to buy fertilizer at the cooperative society and in times of surplus they prefer private dealers because the price is less. Sometimes farmers are forced by cooperative societies to buy a type of fertilizer which is in surplus when they want to buy another type of fertilizer which is

in shortage.

Pesticide Marketing

In the new agriculture technology based on HYVs pesticides play an important role. Cotton, rice and vege tables together accounted for about 80% of the total pesticides used in Indian agriculture (Table V1). Although pesticide consumption in India is increasing along with production, India uses only 3% of the worlds consumption of pesticides. India consumes only 450 gms per ha which is very low compared to 10,800 in Japan and 1,500 in USA and 1870 gm/ha in Europe (In 1965 pesticide use in India was only 77 gm/ha).

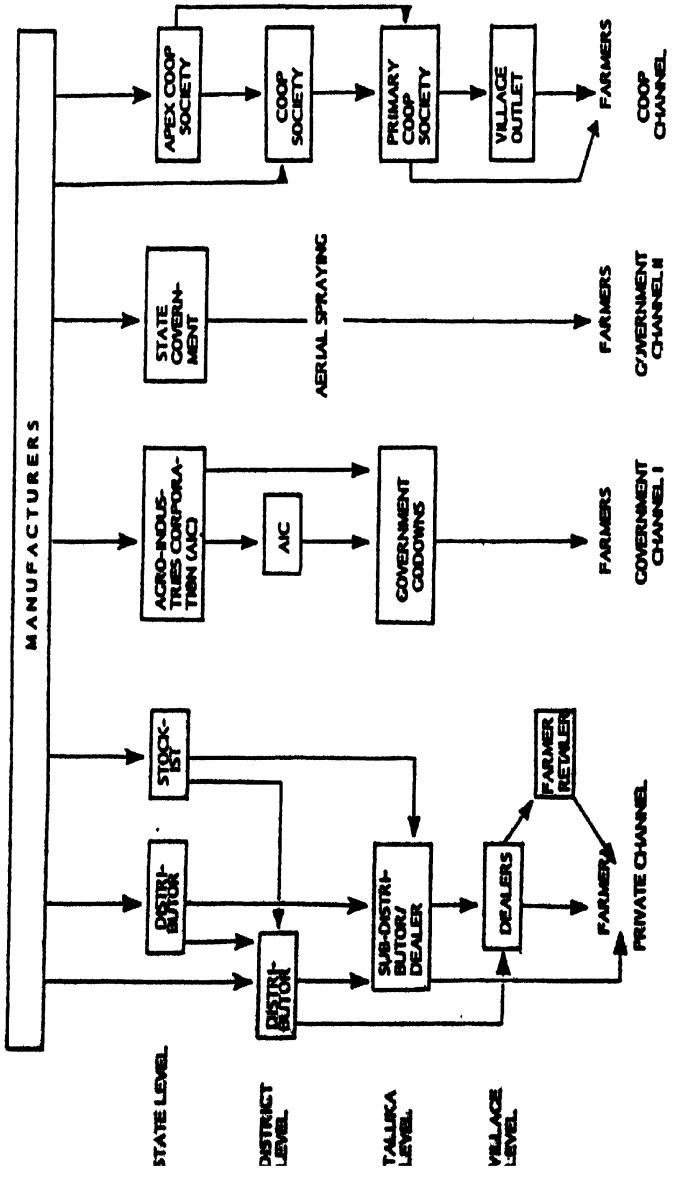
The maximum amount of formulated pesticides in India are used in the southern states of India which are more prone to pest attack. The northern states which have relatively colder climate, pesticide use is low. Exact figures are difficult to obtain. Table VII shows the retail value of pesticides marketed in India in 1980. Andhra Pradesh, Gujarat and Tamil Nadu head the list. In Andhra Pradesh cash crops like cotton and tobacco and cereals like rice may be responsible for high consumption.

India now-a-days is almost self-sufficient in the manufacture of pesticides. Finished products are formulated from technical grade material which is locally manufactured, only 5% of the material are imported, but it comprises some 15 different compounds.

Marketing Channels

Figure 3 shows four marketing channels through which pesticide provided by manufacturers and formulators are supplied to the farmers. The retail outlets for pesticides are similar to those for fertilizers. However, not all fertilizer dealers deal in pesticides and vice versa. The number of pesticide outlets are also less compared to fertilizer depots. Cooperatives have increasingly taken up the distribution of pesticide but the private channel is still the most important distribution channel. In 1983, there were 9,500 selling points in the public sector against a total of 71,000 selling points. Thus about 80% of distribution points are on private sector, 20% with cooperatives and state departments.

FIG. 32.3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AIC
GOVERNMENT GODOWNS
FARMERS
GOVERNMENT CHANNEL I
STATE GOVERN-MENT
AERIAL SPRAYING
FARMERS
GOVERNMENT CHANNEL II
APEX COOP SOCIETY
COOP SOCIETY
PRIMARY COOP SOCIETY
VILLAGE OUTLET
FARMERS
COOP CHANNEL
STATE LEVEL
DISTRICT LEVEL
TALUKA LEVEL
VILLAGE LEVEL

ble VI : PESTICIDE USAGE PER CROP IN INDIA, 1980. [RETAIL VALUE (FARM-GATE) IN MILLION RUPEES]

op	Ratail value (million Rs)	Percentage
itton	1390	40.5
ce	1020	29.5
:getables	390	11.4
garcane	190	5.6
ises & oilseeds	150	4.4
antation	150	4.4
thers	140	4.2
otal	3430[1]	100.0

ource : Banerjee, A.K., "Outlook for Pesticides : Lessons from Abroad," Pesticides nnual, 1980-81, p.5

The corresponding first point sales value in the same year, i.e. from oducers/formulators to distributors/stockists was Rs. 2.820 million.

The Private Channel

In the private channel pesticide flows from the manufacturers hrough distributors or stockists, sub-distributors, dealers and farmers-retailers to the farmers. This is very much similar to the marketing of any other consumer product except that it is subject to some special rules and regulations. Private companies have representatives at district-level who get in contact with distributors to book orders and give information about the use of the pesticides. Multinational companies for instance do not allow the distributors to sell the same products of different brand names.

overnment channel I

The manufacturers sell pesticides in bulk with rebates to the government at state levels. The products are sold in mobile sales offices or local government depots supervised by the District Director Agriculture. There are nearly 6 to 7 thousand depots managed by ferent state governments. Manufacturers are willing to sell certain antities of products to the government because it acts as an inect promotion for their product. Farmers have more confidence brand names and products sold in the government godowns. Conner prices in this channel is about 15% less than the private chan-

nel.

Table VII : VALUE OF PESTICIDE MARKATED IN INDIA, 1980.
[RETAIL VALUE (FARM-GATE) IN MILLION RUPEES]

State	Retail value (million Rs)	Percentage of total Indian market
Andhra Pradesh	500	14.6
Gujarat	450	13.0
Tamil Nadu	400	11.7
Maharashtra	300	8.8
Punjab	270	8.0
Uttar Pradesh	210	6.0
West Bengal	200	5.8
Haryana and Delhi	180	5.3
Karnataka	150	4.4
Bihar	100	2.9
Subtotal	2760	80.5
Others	670	19.5
Total	3430[1]	100.0

Source : Benerjee, A.K., "Outlook for Pesticides : Lessons from Abroad," Pesticides Annual, 1980-81, p.5.

1. The corresponding first point sales value in same year, i.e. from producers/formulators to distributors/stockists was Rs. 2820 million.

Government Channel II

This channel provides plant protection through aerial spraying. The government buys plant protection products for tobacco, sugarcane and cotton in bulk. The products are sprayed through helicopters as aerial spray and the farmers pay about Rs. 10 to 20 per ha which is added as a cess to their land taxes.

Government regulations in pesticide trade

The government has taken several policy measures for development of the pesticide industry in India. This industry is open to large houses and foreign majority companies. Priority is accorded to this industry for the import of raw materials and intermediates which are not indigenously available. In order to sustain the formula-

on industry, pesticides in pure form are allowed to be imported. he import of pesticides which are indigenously manufactured is anned. However, in the cases where the cost of indigenous produc- on is high or inadequate to meet the demand, import of pesticide is ermitted.

Quality control is an important aspect in pesticide marketing. It aimed to check adulteration and sub-standard products. Five egional pesticide testing laboratories have been set up for Quality Control besides various other laboratories at state level. It is governed by Indian standards specification.

Promotion

To "use" the right type of pesticides at the right time in a proper ly needs a lot of knowledge. The pesticide industry does not give enough information and quidance to pesticide users, but all the manufacturers do have a promotion program of posters, crop folders, demonstrations, video films, radio programs, newspaper advertisement and stands on fairs.

Promotion of pesticide use and user's training is also done by the village extension workers of the Ministry of Agriculture. Promotion of agro-pesticide use should be of the informative kind. Farmers need simple information on such a complicated subject.

Problems in Pesticide Trade

In the pesticide trade government intervention in the form of rules and regulation are less, as compared to fertilizer trade. The market is mainly controlled by the pricing mechanism. Although the trade regulations for pesticides are simple, there are difficulties at all levels in these channels.

Under the existing policy, technical grade pesticide manufacturers are required to make available 50% of their production to non-associated formulators but the prices at which such supplies are made are not economical for the formulators.

committee is a problem to the manufacturers because they cannot sell the new product for at least two years. Another problem for the manufacturers is that power, water and raw materials are not always available in sufficient quantities.

The demand for pesticides is difficult to predict and dealers sometimes cannot sell the products before the expiry date passes. If the same product is in shortage some time later dealers will try to sell the old products to farmers if they have some.

Sometimes it is difficult for farmers to get reliable information on proper pesticide use, because government godowns are far away, farmers cannot get in touch with the village extension workers and the advice of private dealers is not correct.

The quality of the products is also a problem because it vari and farmers lose confidence in pesticide use. In 1983-84 1,072 pesticide samples were analyzed by the Central Insecticides Laboratory of which 25.1% were not satisfactory.

Seed Marketing

India's seed industry was little developed until the mid-sixties when as a consequence of plant breeding breakthrough, HYVs and hybrids emerged that were significantly superior to the traditional varieties and required seed processing on scientific lines. The production of certified/quality seed from 1980 in India for some crop group is shown in Table VIII. The total seed production has doubled during the last four years.

In 1963, the National Seeds Corporation (NSC) was established by the government of India to promote the seed industry from production through to marketing and to establish a system of quality control. Although the NSC is not meant to be a agency for the production and distribution of quality seeds by 1974/75 it had become the largest producer accounting for 73,000 tonnes of seed, representing about 50% of indigenous production. In 1974, the National Seed Programme (NSP) was taken up to develop a broad-based, decentralised network of seed production, processing, storage and marketing agencies. The NSP established State Seeds Corporation

(SSC) and took over the production role which NSC had hitherto performed. It was not contemplated that every state corporation would become self-sufficient in respect of the total needs of the state, and in any case this is not sound because this might not be the economically either.

Before a variety can be multiplied as certified seed it has to be notified and licenced by the State Variety Release Committee (SVRC) and the Central Variety Release Committee (CVRC).

Private seed companies produce certified seeds as well as truthfully labelled seeds (also called quality seed). Truthfully labelled seed (quality seed) are varieties which are not notified and licenced by the government. The brand name is used as a guarantee for the quality.

The Seed Marketing Channels

In the seed trade separate channels are not easy to distinguish as can be seen in Figure 4. Private distributors and dealers get the supplies from the NSC, the different SSC's or private seed companies. The cooperative societies purchase seed from the NSC and the SSC only. The NSC and the SSC have their own sale counters at taluka level. The quantity sold through these sale counters is not much. However, they function as a check-point for prices and quality for farmers.

In the government godowns only certified seed produced by the NSC or SSC is sold. The Andhra Pradesh State Seeds Corporation for instance sells 60% of its production to agro industries corporation, 30% to the NSC' 10% to private dealers and 1% through their own sales counters.

Government godowns -- NSC and SSC -- do not provide credit facilities to farmers. Cooperative societies mostly do give credit to farmers for buying seed and the credit facilities given by private dealers depend on the relationship between trader and farmer.

FIG. 32.4

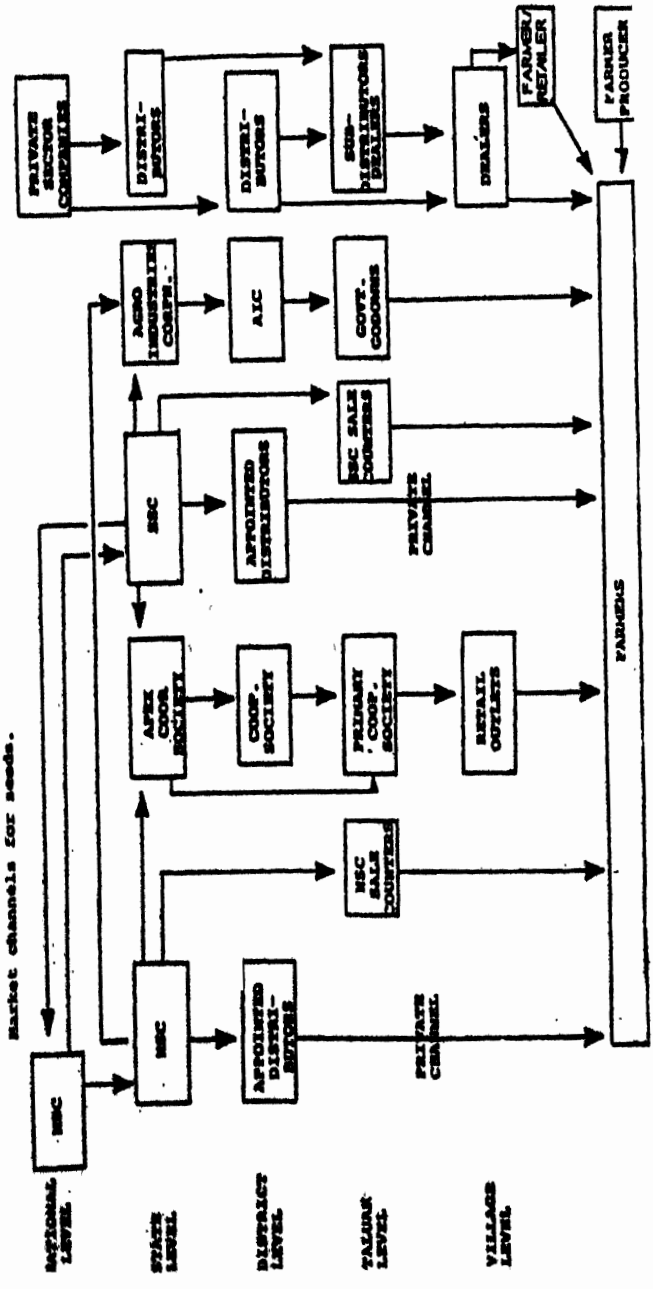
Market channels for seeds.
NATIONAL LEVEL
STATE LEVEL
DISTRICT LEVEL
TALUK LEVEL
VILLAGE LEVEL
NSC
SSC
APPOINTED DISTRI-BUTORS
NSC SALE COUNTERS
APEX COOP. SOCIETY
COOP. SOCIETY
PRIMARY COOP. SOCIETY
RETAIL OUTLETS
PRIVATE CHANNEL
FARMERS
SSC SALE COUNTERS
APPOINTED DISTRI-BUTORS
AGRO INDUSTRIES CORPN.
AIC
GOVT. GODOWNS
PRIVATE SECTOR COMPANIES
DISTRI-BUTORS
DISTRI-BUTORS
SUB-DISTRIBUTORS DEALERS
DEALERS
FARMER/ RETAILER
FARMER PRODUCER

TABLE VIII : PRODUCTION OF CERTIFIED/QUALITY SEEDS IN INDIA. ('000 TONNES)

	1980-81	1981-82	1982-83	1983-84
Cereals	187.4	201.3	292.9	372.6
Pulses	10.2	11.9	20.7	55.4
Oilseeds	1.4	4.4	16.5	85.7
Fibres	7.0	9.6	13.5	28.7
Potato	11.8	13.4	20.0	33.9
Others	0.8	1.2	2.5	6.0
Grand total	218.6	241.8	366.1	512.7

Source : Lakshmi Roy, "The New Green Dimension of the Seventh Plan", The Economic Times, August 14, 1985.

Government regulations in the seed trade

Generally the government regulations in the seed trade are less. Certified seed produced by NSC or SSCs has to be from varieties notified and licensed by the CVRC.

Certified seed has to be sold in sealed bags and the label should mention the germination ratio and date of production. Private companies are allowed to sell all the varieties they want to and do not have to sell it in sealed bags.

The government came out with the Seed Control Act in 1983 declaring seed to be an essential commodity and requiring compulsory registration of dealers, imposing price control etc. However, the operation of the order has been stayed by various courts. The issue is now pending before the Supreme Court.

Promotion

Most farmers are aware of the fact that quality seed is necessary for attaining higher levels of productivity. Still much information has to be given to farmers on the optimal quantities and varieties they should use. The NSC and SSC have some promotion programs, they train village, extension workers, have posters, crop folders demonstrations, video films, and newspaper advertisement. Private breeders do have a promotion program on the above lines and mainly propagate their brand name.

Evaluation of the Seed Trade

Farmers mostly use their own seed or buy seed from other farmers. If the farmer decides to buy seeds from other sources he generally prefers to buy seed from a local dealer because they

-sell seed in unsealed bags so the farmer can look at it and judge the quality;
-they sometimes provide credit facilities;
-the shops are mostly nearly;
-they sell uncertified seed at lower prices.

The NSC and SSC dealers do not provide credit to dealers and this is an important reason for dealers to buy seeds from private breeders.

The quality of the seed sold is not always satisfactory. Seed is a living product and has to be handled and stored with care. Storage facilities in consuming areas are not always adequate.

Sometimes the germination is too low or adulteration has taken place. After seed is declared an essential commodity malpractices can be prevented more easily.

The seed industry in India has to cope with many difficulties. There is hardly any coordination between the different organizations. There is not enough knowledge of the market, the preference for varieties differ from place to place and change over time rapidly.

Situation on Commercial input Marketing in Three Villages in Sat India

In the previous section the functioning of the input markets for fertilizer, pesticides, and seeds was described at the all-India level. In this section, the utilization of commercial inputs at farm level in three different villages in the SAT India are compared. Individual farmer's use and access to fertilizer, pesticides, and seeds are studied.

The three village considered in this study are part of ICRISAT

Village Level Studies being conducted since 1975 in 6 village in 3 major agroclimatic zones of India. In each of these villages, data from 40 households (10 each from landless labor, small, medium, and large-farm categories) were monitored by resident investigators on all aspects of farming including input, output details. Shirapur, in Sholapur district (Maharashtra), is characterized by low and unstable rainfall, and is dominated by post-rainy season cropping of mainly coarse cereals and pulses on medium-deep Vertisols. Kanzara, in Akola district (Maharashtra state) has similar soils, stable and somewhat higher rainfall, very little irrigation, and fairly high area under nonirrigated, commercial crops like cotton, hybrid sorghum. Aurepalle in Mahbubnagar district (Andhra Pradesh), state has red soils, high irrigation, low rainfall and relatively smaller holdings. The cropping pattern is dominated by paddy. For the present study on input markets extra information is gathered by means of interviews with farmers using fertilizer and other inputs. Input dealers in the vicinity of these villages (including neighbouring towns if any) were also interviewed.

The nearest market town for farmers in Aurepalle village is Amangal which is 10 km away. Farmers in Shirapur go to another village, Mohol 10 kms away, and Kanzara farmers go to Murtizapur town which is also 10 kms away. In all the three villages farmers transport their produce mostly by bullock carts and inputs also by bullock carts, bicycle or bus.

When the mean values (for all farmers in 1983-84) of the fertilizer use on irrigated and non-irrigated areas are compared, Table IX we find that the use of fertilizer on non-irrigated land is low in all the villages. In Kanzara village farmers use some fertilizer on non-irrigated land particularly for crops like HYV sorghum and wheat. In Shirapur, the use of fertilizer on non-irrigated as well as irrigated land is negligible. The value of the seed used per ha is higher on irrigated land. The Kanzara farmers invest more money on seeds as compared with the other two villages. The value of the pesticide use per hectare is low in all the three villages on irrigated as well as unirrigated land. In Kanzara village pesticides are mainly used on cotton and chillies.

Table IX : THE VALUE OF FERTILIZERS, PESTICIDES, SEEDS AND TOTAL INPUT VALUE IN RS/HA IN STUDY VILLAGES IN THE YEAR 1983-84.

	Aurepalle		Shirapur		Kanzara	
	Irri-gated	Not-irri-gated	Irri-gated	Not-irri-gated	Irri-gated	Not-Irri-gated
Fertilizers	558.96	17.21	65.09	0.48	429.18	148.4
Pesticides	13.49	10.69	6.98	1.30	126.46	5.5
Seeds	190.79	38.52	129.09	28.84	434.94	85.6
Total inputs	2919.80	477.46	2519.96	358.81	2112.02	899.3
Output	5947.4	1070.51	1875.89	732.02	4411.39	1923.3

Farmers access to fertilizer

Most of the farmers in Aurepalle village buy their fertilizers private shops in Amangal. In Shirapur village there are only 6 far who bought fertilizer regularly during the last three years out of : VLS respondent farmers. They go to private shops in Mohol or Sholapur which is 22 kms away from Shirapur.

In Kanzara village 18 out of 23 respondents usually buy fertilizer a cooperative society in Murtizapur and 5 farmers mostly go to priva shops in Murtizapur.

One-third of the respondents in Aurepalle sometimes face supp constraints on complex fertilizer like 28:28:0 (three farmers) ar 14:35:14. The dealers in fertilizer in Mahbubnagar distri (Mahbubnagar, Jedcherla, Kalwakurty, etc.) problems in getting suf cient supplies of complex fertilizer like 17:17:17, and 28:28:0.

In Shirapur there was one farmer who had difficulties with gettir the complex fertilizers 19:19:19 and 15:15:0 in August and Septembe Dealers in fertilizer in Sholapur and Mohol do not face any problen in the fertilizer supply in their region.

Sixteen out of 23 respondents in Kanzara village have problen with buying the type of fertilizer they want on time. Shortages exist c the complex fertilizer 18:18:10 and 20:20:0 at sowing time in June ar on Urea in August/September. Dealers in Murtizapur and Akola a

)it that there are sometimes shortages on these fertilizers.

In the current year the private traders in Murtizapur did not have ny stock of 18:18:10 and only a limited stock of 20:20:0. Private 'aders were selling Urea at the government fixed prices. Farmers who 'anted to buy complex fertilizer at the cooperative society in Murzapur were forced to buy one bag of Urea for every two bags of comlex fertilizer.

Small farmers in Aurepalle sometimes buy fertilizer in quantities :ss than one bag from private traders or other farmers. The price per g is 5 to 10 per cent higher in that case.

According to most of the respondents who buy fertilizer more than bnce during a year, the fertilizer prices fluctuate during the year. At nes of shortages private dealers charge more than the government ıxed prices and in times of surplus prices are slightly less. The cooperative societies as well as the government godowns always charge the government fixed prices. In Amangal the types of fertilizer the farmers prefer are not available.

In Table X the difference between the government fixed prices +sales taxes) and the mean price the farmers actually paid for some mportant fertilizers are shown. The Table shows that most of the time he farmers pay more than the government fixed prices. The leferences between the actual and the government fixed prices change rom year to year depending on supply and demand situation. Unfortunately, these price differences cannot be compared between the hree villages because the pattern of fertilizer use is not the same. The lifference between the fixed prices and the mean actual prices in 983-84 is lower than in the other years for most fertilizers in the vilages. Farmers in Kanzara in 1983-84 on an average paid even less han government fixed prices because there was an extra government ubsidy on fertilizer, used for irrigated summer groundnut. In urepalle the price difference in 1983-84 was lower than in the previus years, despite higher consumption levels. This could be because of etter supply position.

Farmers in Aurepalle on an average pay more for fertilizer than rmers in Kanzara. Most of the farmers in Kanzara prefer to buy fer-

tilizer from the cooperative society where prices are always at the leve fixed by the government. Farmers in Aurepalle usually buy fertilize from private shops.

In a research on the use of fertilizer and organic manure done in 1980 , in the three study villages, reasons for farmers not using fertilizer at all or not using the recommended dose was elicited. The main reasons for farmers not using fertilizer are non-availability of credit and lack of irrigation facilities. Nonavailability of credit was mentioned as the most important reason by farmers in Aurepalle and Kanzara for not using the recommended dose. Lack of awareness of recommended dose and inadequate irrigation facilities are also important reasons for not using recommended dose.

Situation on pesticide marketing

Farmers in Aurepalle buy pesticides mostly from private shops in Amangal. Two respondent farmers buy pesticides directly from moneylenders in the village. In Kanazara farmers mostly buy pesticides in private shops and 4 respondents usually go to the cooperative society in Murtizapur. Only 6 of the VLS respondents in Shirapur sometimes applied pesticides, they buy it in private shops in Mohol and Sholapur.

In Aurepalle there are sometimes shortages on Rogor and Sevimol. Roger is mainly used on pigeonpea for Heliothis pod borer control and Sevimol for semi-loopers (Achoajanta) control which reduce the castor yields. In times of serious attack from semi-loopers on castor the availability of Sevimol and sprayers cause many problems. Prices of this pesticide rises by 10 to 15% and sometimes old stocks are sold to the farmers. In normal circumstances the availability of sprayers cause no problems in Aurepalle. Some farmers have their own sprayer, some borrow it from other farmers or moneylenders and others have to hire it for Rs. 5 to Rs. 6 per day.

In Shirapur farmers do not have problems with the availability of pesticides nor sprayers. Farmers who apply pesticides have their own sprayer or borrow it from other farmers.

Table X : DIFFERENCE BETWEEN GOVERNMENT FIXED PRICE AND ACTUALPRICE OF FERTILIZERS PAID BY FARMERS EXPRESSED AS PERCENT TO GOVERNMENT PRICE IN RECENT YEARS IN STUDY VILLAGES.

	1981-82	1982-83	1983-84
Aurepalle			
Urea	9.1	9.1	0.20
DAP	5.3	5.9	-4.0
17:17:17	7.0	8.2	5.0
14:35:14	-	1.2	6.9
28:28:0	4.3	5 7	0
Shirapur			
Urea	6.5	9.3	2.3
DAP	-	-	-8.7**
15:15:15	7.7	3.6	-5.1**
18:18:0	0.8	2.0	-2.0**
Kanzara			
Urea	4 7	8 4	-2.8**
15:15:15	7.7	3.6	-5.1**
18:18:0	0.8	2.0	-2.0**
ANP	8.2	7.3	-10.0**

* Data on one purchase of 50 kg.
** Subsidy on Irrigated Summer Groundnut.

Pesticide supply in Kanzara village is not a real problem although farmers sometimes have to wait for a few days to obtain the pesticide they want to apply. There are enough sprayers in the village.

Situation on Seed

In all the three villages farmers mostly use their own seed. They also buy seed from other farmers and quality or certified HYV seeds from private shops. In Kanzara 20% of the respondents preferred to purchase the sorghum variety CSH-9 in the cooperative society.

In Aurepalle it is common that farmers borrow seeds from other farmers or moneylenders. If farmers borrow paddy or castor seeds they have to give 150% produce back after harvest. For sorghum, millet, pigeonpea and horsegram, farmers have to give 200% produce back after harvest. Borrowing seed from other farmers is not prevalent in Shirapur and Kanzara.

Farmers never have problems in getting enough quantity of the certified quality seed of varieties they prefer in the shops. Sometimes they are not satisfied with the quality of the seed, the germination is not good or adulateration has taken place. This year for instance 1'3 of the respondents in Aurepalle were not satisfied with the certified Aruna Castor seed they had purchased.

Source of Information

Farmers in all the three villages get information and advice on fertilizer and pesticide use mostly from progressive farmers in the village, from their money lender or sometimes from the village or taluka shopkeepers. Only one farmer in Aurepalle goes to the government extension service in Amangal for advice. ICRISAT experiments and ICRISAT investigators in the villages were also mentioned as sources of information.

All the farmers relay on their own experience as far as decisions on seeds are concerned. After seeing a successful new variety with progressive farmers they may decide to try it themselves the next season.

Farmers in Aurepalle, and Kanzara were complaining about the village extension workers. They seldom visit the villages and farmers can hardly get in contact with them. Shirapur is also rarely visited by village extension workers.

Conclusion

If the government wants to prevent malpractices in fertilizer trade which effect the farmers they have to raise the distribution margin for the private channel so there will be more competition and less malpractices. The government allocation policy of fertilizer needs to be critically evaluated. How far the market forces of supply and demand will do a better job of allocation should be considered. For pesticides and seeds quality control measures should be followed strictly. Proper information on the use of these inputs should be given to farmers. Private dealers trading in commercial inputs should be trained for this purpose.

NOTE

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