



CHAPTER VI

**Number of Samples drawn, Reported Adulterations
And Cases launched.**

CHAPTER - 6

NUMBER OF SAMPLES DRAWN, REPORTED ADULTERATIONS AND CASES LAUNCHED

6.1 Introduction :

To test the hypothesis stated in Chapter One, we have collected the statistical data from the Food and Drug Administration (FDA) department of Kolhapur district. The data collected relate to the recent period of 1988-92. Besides the data includes samples drawn by us from the Kolhapur city proper. They have been tested in the public laboratory on our own account. In what follows will be the analysis of the statistical data collected from FDA office and the results we obtained from our own samples of groundnut oil and other equivalent edible oils.

6.2 Classification of Area and Trade Channels :

The FDA for its administrative purpose, has divided the whole of Kolhapur district into three parts designated as (1) Corporation area, (2) Municipal area and (3) Rural area. The samples drawn are again divided into trade channelwise viz. manufacturing, wholesale and retail levels. Both areawise and trade channelwise data have been collected and tabulated with a view to understanding the trend of adulteration over the short period of 1988-92. The samples

drawn by FDA in the corporation area amounted to 66 at whole sale plus 32 at manufacturing and plus zero at retail levels in the year 1988. In the municipal areas samples drawn by the FDA department were 5 at retail, 13 at wholesale and 10 at manufacturing levels. Similarly in the rural areas the samples drawn were respectively 9, 2 and 4. The total for the district worked out to be 14+81+46 making the grand total of the samples at corresponding levels to 141.

Out of these samples only eight (8) at wholesale level in the corporation area reported to be adulterated. In terms of percentage it just formed 12% of the total at wholesale level. If one takes into account the grand total of the samples drawn areawise and channelwise the percentage of the number of reported adulteration worked out to be just 5.6%. Even one goes a step further and takes into account the cases launched against adulterations out of the reported adulterations only 7 had been prosecuted for the breach of the provisions of prevention of food adulteration act, 1954. In terms of percentage the cases launched against adulterations formed 87.5% of the total of reported adulterations.

For the year 1989 the total number of samples drawn amounted to 152. Out of these 20 were from retail, 72 from wholesale and 60 from manufacturing levels. The areawise distribution of the samples were 12 in the corporation, 3 in municipal and 5 in rural areas at the retail level, at the

wholesale level the corresponding numbers were 67, 2 and 3, and at the manufacturing level they were 38, 14 and 8 respectively. At the retail level areawise percentage shares worked out to be 60% in the corporation area, 15% in municipal area and 25% in rural areas of the Kolhapur district. At the wholesale level the relative percentage shares area-wise worked out to be 93.0, 03.0 and 04.0 correspondingly. At the manufacturing level the areawise percentage distribution worked out as 63.3% in the corporation 23.3 percent in municipal and 13.3 percent in rural areas. The number of samples drawn from the wholesalers far exceeded those from manufacturers and retailers.

In the year 1990 areawise distribution works out to be as follows (1) at the retail levels samples collected were few in number 28 only. The respective areawise percentage shares were 54.0, 14.3 and 32.1 percent at the wholesale level the samples drawn seemed to have been concentrated 128 whereas the samples at retail and manufacturing levels together number just 56.

Again, the samples drawn by the FDA seemed to have been concentrated in the corporation area forming 94.5 percent at wholesale level and remaining have been distributed between retail and manufacturing levels more or less in equal proportions. At the manufacturing level too, the samples seemed to have clustered around the corporation area and the rural area together forming 96.0 percent of the

total. Only one sample from the municipal areas seemed to have been collected at the manufacturing level. Thus the areawise distribution of the samples seemed to have been continued on the same pattern in the subsequent year of 1991. In the corporation area the samples drawn at retail level formed 65.0 percent, 3.1 percent in municipal area and 32.0 percent in rural areas, at the wholesale level the distributive percentages areawise worked out to be 89.0, 3.5 and 7.5 percents correspondingly. Here again it is noticed that a large number of samples seemed to have been clustered at the wholesale level and that too in the corporation area, and the remaining 11 percent have been distributed between municipal and rural areas. As compared to samples drawn from the wholesale traders, the samples from manufacturers were quite limited, 42 only. Their areawise distribution formed 60 percent from the corporation area and rest 40 percent from residual area of the district. But in this year (1991) the samples drawn seemed to be the highest amounting to 206. During last 4 years, the total number of samples drawn for the district as a whole seems to have been on the rise. Upto 1991 samples drawn point to the quantitative performance whereas the qualitative performance judged in terms of reported adulterations and the cases launched against them are indicative of a rather poor performance of the FDA department.

As against the past performance the samples drawn during the current half of the year (1992-93) numbered 83,

though this number seems to be quite small, the number of reported adulterations and cases launched against them are relatively large viz., 10 and 7 respectively. In terms of percentages the reported and cases launched against the adulterations work out to be 12% and 70% to the total number of samples drawn during the period under reference. The current performance of the department, though for a short run seems to be quite outstanding when compared to its past performance. It should be taken as an indicative of the activation of the departmental personnels towards effective implementation of the varied provisions of the PFA act. This might have been due to the dynamic personality of the present Commissioner Shri S.S. Puri* (I.P.S.) who put more emphasis on the qualitative performance of the department. He (the Commissioner) brought to the notice of the administrative personnel/s the past poor performance and put stress on detecting the adulterated products more rigorously in the meeting called for discussion of the pros and cons of the poor performance in the recent past. During his tennure he made a sincere attempt to streamline the whole administrative set up and instilling in it a sense of purpose for which it came into existence. The present outstanding performance relatively to past performance could thus be attributable to capabilities dynamism and imagination required for motivating the personnels of the department in their duties which found to be possessed by Shri S.S.Puri

* Before submission of the present dissertation it was reported that Shri Puri had been transferred from FDA to some other department.

On the whole areawise and trade channelwise samples drawn has followed more or less the same pattern throughout the period. The foregoing discussion regarding the samples drawn points out that, the samples drawn by the FDA officers are mainly from the corporation area and from the wholesale traders. Whereas, samples from municipal and rural areas form very small proportion of the grand total. The samples again at retail and manufacturing levels over the period are relatively small.

The number of reported adulterations is quite meagre in relation to the total number of samples drawn and tested. The highest number of reported adulterations occurred in the year 1988 i.e. 8 at wholesale level. In the subsequent years declining trend set in. During 1991 one at retail level and one at wholesale level reported to be adulterated.

During 1988 to 1991 the areawise distribution of reported adulteration worked out to be 15 in the corporation area, 2 in municipal area and 4 in the rural area. Upto 1991 the percentage of reported adulterations to total number of samples drawn declined from 6 percent to 1 percent.

Cases launched against reported adulterations are 7 in 1988, 4 in 1989, 3 in 1990 and nil in 1991. As a general remark we conclude that the number of reported adulterations and the number of cases launched against adulterations are relatively quite few in number. Though in terms of samples drawn and tested by the FDA seem to be quantitatively satis-

factory but in terms of reported adulterations and cases launched against them seems to be rather unsatisfactory. The reasons for this unsatisfactory work of this department are as follows :

1) First of all status differential among the officials of the FDA is largely responsible for unsatisfactory work. The status of Food Inspectors and Drug Inspectors have been differentiated by the FDA. The Food Inspectors have been regarded as lower grade Inspectors than that of Drug Inspectors. Eventhough it was pointed out that the distinction between the two must go, and equal status should be conferred on Food Inspectors and their number should be increased so as to make the FDA department more efficient in the implementation of the PFA Act. Unfortunately, this measure has been overlooked by the top officials of the FDA in the past, and hence the laxity in the strict enforcement of the provisions regarding the adulteration of food articles.

2) The indifferent attitude of the Food Inspectors might have been due to want of timely promotions in the department. Even though Food Inspectors work for a number of years, they are not hopeful to get the promotions at the required time. The Food Inspectors who have been doing their job sincerely and keen on detecting the incidents of adulteration do not get the timely co-operation from the Personnel Section of the FDA. Sometimes it is common experience that the surprise visits to the trading firms have been obstructed by the establishment either purposively or unknowingly.

3) In big cities like Bombay, Poona, Nagpur and even at district places the other perks are quite inadequate as compared to the actual expenses they incur. It is because of lack of adequate monetary incentive and the lethargy on the part of the concerned seems to have been looming large.

4) Food department of the FDA has been treated by the high officials as secondary and the drug department is always considered to be of prime importance. Within the department of food administration the promotions to supervisors at district places have been given only once since the inception of the department, and that too promotions are not based on the efficiency criteria and merit of the individual concerned or the prevailing norms and criteria for giving promotions are not observed. The food department of FDA has been receiving a step-motherly treatment by the high officials of the FDA.

5) Sometimes injustice is being done on the efficient and meritorious personnels of the PFA department by not taking into account their sense of purpose the merit and sincerity with which they do their jobs while administering the provisions of PFA act. All these factors have been made the FDA department a bit sluggish in the administration of the act.

6) The failure of large number of samples drawn by the FDA to conform to the requirements of adulteration has been responsible to the defective or otherwise technical labo-

ratories. The traders in collusion with the technicians could manipulate the samples of adulteration, so as to get free from restrictions of food department. Therefore, the whole responsibility of less number of adulteration reported so far could not be placed on food inspectors of the food department.

6.3 Reasons for High Number of Samples Drawn from the Corporation Area :

First the head quarter of the FDA is located at the district place of the Kolhapur. Secondly the wholesalers from whom a large number of samples had been drawn are located at Kolhapur. Therefore, the wholesalers and the retailers at Kolhapur are easily accessible to the food inspectors of the FDA. Thirdly the more scientific reason for a large number of samples from the corporation area and that too from wholesalers is that the groundnut oil is being distributed through the wholesalers to the retail traders in the corporation area and also to the municipal and rural areas of the district. The adulteration could be detected and checked at the wholesale level so that the adulterated oil should not pass on to other trade channels reaching to the final consumers. The adulteration thus could automatically be controlled in municipal and rural areas at retail level.

6.4 Reasons for Less Number of Samples from the Municipal and Rural Areas :

In the first place the local health authorities (LHA) appointed by the government in the municipal and rural areas

are different, they mainly belong to the revenue department, they are overburdened with their principal and other related work. Hence there is a lack of proper co-ordination and correlation of programmes with the FDA. Moreover, as they have not been appointed solely for the purpose of administration of FDA they are least interested. Sometimes because of their lack of motivation and varied nature of their principal job, the administrative personnels are being deterred. The logic behind all this is that the adulteration could be controlled very effectively at the main flow of concerned article which go to retailers in the remote area. Hence the possibility of adulterated stuff, reaching to the final consumers is effectively and automatically controlled except the adulteration which might occur at retail nodes.

Above all these, the amendment of 1975 of the PFA act is responsible for lethargy on the part of the administrative staff of Food department. The amendment has introduced the inter-departmental linking and as such the dependence of the FDA department particularly, of food department for the effective implementation of the act has been increasing since then. As a result the authorities of the food department have been reduced to a state of lameducked.

6.5 Reasons for Less Number of Reported Adulterations :

Samples of groundnut oil reported to be adulterated or not conforming with the standards of the PFA act are many at wholesale levels and areawise they fall in the corporation

area. Even though they are quite few as compared with the samples drawn by the FDA department of Kolhapur district. The very high concentrations of reported adulterations of groundnut oil could be attributed to groundnut oil trading structure of the Kolhapur district. The Kolhapur city being a district place and being highly commercialised and industrialised centre, the wholesale trading in Kolhapur is concentrated. Therefore, groundnut oil is distributed from this main fountain to the interior parts of municipal and rural areas of the district. The wholesalers of Kolhapur trade the groundnut oil on wholesale to wholesale and even retail basis. The wholesalers in the corporation areas and wholesalers in municipal areas if any sell the groundnut oil to the retail traders who combine their trading in other household commodities. Therefore, the samples collected by the FDA from the corporation areas and that too from the wholesalers in Kolhapur city are considerably large in number when compared with those at retail and manufacturing levels. The retailers in groundnut oil though they are located in municipal and remote rural areas do not take the risk of selling dubious groundnut oil on their own account. Since the penalties to be imposed on culprits of adulteration whether at manufacturing or wholesaler or retail levels are so heavy that the retailers carrying their trade on a very small scale do not normally take the risk of adulterating groundnut oil. The provisions of the PFA act involving disproportionate penalties and fines are so heavy that the retailers are rather not prone to committing malpractices

amounting to adulteration. Further the retailers are prevented from adulteration to avoid legal litigations. However one cannot rule out cent percent adulteration taking place at the retail level. The retailers on the other hand do adulterate groundnut oil as per PFA act which includes the clause that when the consumer demands groundnut oil but the retailer sells the substitute parallel oils like sunflower, soyabean oil and others. This sort of adulteration being practiced by retailers is very easy to evade the provisions of the PFA act. The retailers can earn profit more by selling substitute parallel oils like sunflower and soyabean than by selling dubious groundnut oil. For example, at ruling prices of groundnut oil per kg in the market Rs.35 and the price of sunflower oil Rs.26 a kg the trader can earn Rs.9 per kg profit by selling sunflower oil at parity price of groundnut oil. This sort of trade practice which goes unnoticed by the consumers amounts to cheating the consumers and according to the provision of PFA act it amounts to adulteration also. Though this sort of trade practice seems to be common at retail level, the samples drawn are relatively few mainly because of the lengthy and cumbersome legal procedure to be followed by the PFA authorities. This is why the PFA authorities are reluctant to draw a large number of samples from the retail traders. Hence we find a relatively smaller number of the samples collected from the retailers in the recent past years.

6.6 Reasons for Low Number of Reported Adulterations :

It is also worth noting the fact that very few samples had been reported to be adulterated over the period under study. The reported numbers of adulteration as stated in the earlier paragraphs had declined during the period. If one goes by the statistical data as to reported adulterations, the data show the declining trend towards adulterations of groundnut oil at distributive wholesale trading level. The reasons for declining trend of adulterations might have been as follows :

The wholesalers are not prone to adulterate groundnut oil with a view to establish the good will towards their firms. Further they are afraid of the fact that any incident of adulteration detected and confirmed at retail level would easily be shifted to the wholesale traders. It is because of this increasing awareness on the part of the wholesalers, the tendency towards adulteration at the wholesale level seemed to have been kept at low level. The trading community and particularly the trading community of the younger generation being educated fully well the provisions of PFA and the implications of transgressing those provisions, they are deterred from committing the acts of adulteration which can easily be detected and caught hold of. However, they may practice by trial and error methods, the limits of tolerance of adulteration and take advantages of the gap between minimum and maximum parametric values of analysis prescribed by PFA act. In regard to the incoming groundnut oil from other

states the possibility of its adulteration cannot be ruled out. Incoming edible oils are likely to be adulterated by the wholesale suppliers and/or oil mills located at the outside state. It is just likely that groundnut oil can be mixed with some other low priced edible oils like sunflower, Soyabean and cotton seed oil outside the state. For example the incoming groundnut oil from Gujarath cannot be assured as unadulterated because 15 kg packed tin of groundnut oil is set to be consisting of a mixture of 10 kg groundnut oil, 2 kg of castor oil and 3 kg of rapeseed oil. At this ratio even loose groundnut oil could easily be adulterated without being detected e.g. castor seed oil mixed upto 20 percent with groundnut oil goes undetected unless a specific test is conducted for castor oil. This type of adulteration seems to have been common in Karnataka and Andhra as these two states are the cultivators of castor seed crop as well as groundnut kernels on a very large scale. To prevent the outside suppliers and millers from adulteration the food authorities check the oil tankers at the octroi post intermittantly. This sort of paying surprising visits are intended to pressurise the outside suppliers.

6.7 Adulteration During Transit :

Incidentally, it should be mentioned that at the wholesale level the chances of adulteration are minimised on account of one more reason. During the period of transit from outside the state the possibilities of adulteration

have been eliminated in the recent past. When the wholesale trade is carried on in tankers containing ten thousand kg. of groundnut oil, the pilferage which was likely to occur in the past is now said to be minimised. Following reason can be attributed for the same is that the drivers have been allowed 30 kg of edible oil wastage per tanker. Therefore there is less ground for motivating them for adulteration. Besides there are strict conditions as to the tankers to be used for consignment of groundnut oil. Certain specifications of the tankers in which groundnut oil is transported are laid down and adherence to those specifications is insisted on. Prior to these, there were possibilities of adulteration during the period of transit and the responsibility of adulteration was very difficult to locate and fix. Because of all these things the wholesale traders now-a-days are found to be less prone to adulterate.

6.8 Least Possibility of Adulteration at Manufacturing Level :

While analysing the statistical data it is found that the samples drawn by the FDA at the manufacturing level are relatively lesser. The reasons for lesser and lesser numbers of samples drawn and tested are as follows :

The groundnut oil mills located at Kolhapur proper try to keep up with the established reputation of their products and good will among their customers, as regards the quality of their product. The quality of the groundnut

oil manufactured at Kolhapur and at some other places of Kolhapur district is considered to be of a very high standard and therefore the producers get premium prices for their product. Groundnut oil produced at Kolhapur and in the district is highly demanded by the customers from Bombay and some other consuming centres. Since the groundnut oil mills are very particular about maintaining the standard of high quality product they are not prone to adulterate the final product while expressing the groundnut oil from groundnuts.

Another reason for least adulteration at the mill level is that, the mills are in close and keen competition with one another. Hence they dare not to loose their customers by supplying substandard products through adulteration.

Moreover if adulteration occurs at manufacturing level the responsibility of it could easily be located and fixed at the manufacturing level. The manufacturers could easily be caught hold of by the PFA authorities. The penalties involved for the breach of the provisions of PFA act are so severe that the manufacturers are not inclined to take the risk of being prosecuted. Still more important than this is that by committing acts amounting to adulteration the mill owners are likely to damage their reputation amongst the trading community and the general public as well. It is more likely that the individual mill owners loose their market through damaging the purity of their prdoucts. In fact when the number of firms are limited and

are in close competition with one another they try to improve the quality of their product and make an attempt to win a larger and larger share in the total market. This behaviour of the manufacturing firm is opposed to a tendency towards adulteration. In point of fact they want to stabilise in their trade and improve their competitiveness of their products in the market by improving qualities both physical and chemical in nature. As stated earlier, the manufacturers of Kolhapur have been receiving premium prices for groundnut oil there is no incentive to earn more profit by resorting to some other tactics which are prohibited by law. The mills located in the remote places though few are inaccessible to the enforcing authorities of the PFA act. The mills being located at too far distant places from the head quarters of the administrative staff may not visit those mills very often as they do in corporation area. It is therefore, ^{that} there are more chances of adulteration in remote places.

The total or partial absence of adulteration at manufacturing level could to some extent ^{be} attributed to effective implimentation of PFA act. The PFA authorities claim that the vigilant and strict enforcement of the act is responsible to curb the adulteration at both manufacturing and wholesale levels.

6.9 Paradoxical Situation :

However it is paradoxical to note that there are incidents of adulteration at the retail level both in municipal and rural area against which cases have been launched. If according to statistical information the adulteration does not take place at wholesale and manufacturing levels then from where the adulterated edible groundnut oil reach (to) the retailers. The explanation for this paradoxical situation could be sought from the following reasons :

- 1) Retailers may indulge in adulteration deliberately with a profit motive.
- 2) Retailer may sell deliberately a substitute article viz. oil in place of the demanded oil.
- 3) Retailer the rural areas being uneducated and unaware of various kinds of equivalent edible oils may err in expressing the name of the oil to PFA authorities or in understanding the nature of oil they purchase and sell to retail buyers.
- 4) At manufacturing level as it is evident from the above that,
 - i) manufacturers are committed and motivated to their quality.
 - ii) premium price they get for their product, and the strict enforcement of PFA act.
 - iii) their close competition, good will and their desire to win the alliance of their customers.

Not all but most of these reasons are responsible for less adulteration.

5) It is revealed from the statistical data that there is less adulteration. This might be due to some other reasons responsible for getting this picture.

6) At wholesale level when groundnut oil tankers arrive from nearby states they remain in the physical possession of the wholesalers for a very short period. If the oil is to be stored by the wholesalers for a little longer period it is stored at a different and/or remote godowns which may go unnoticed by the enforcing authorities, or the authorities/staff might have turned deaf ears, or wholesalers may connive with local laboratory analyst or staff from laboratory. Hence the adulterated groundnut oil reaching to the retailers and ultimately to the consumers might have gone undetected.

Since a large part of total supply of groundnut oil in the district is drawn from the neighboring surplus states of Gujarat, Karnataka, Andhra Pradesh and Tamil Nadu where the PFA act is neither made applicable nor is strictly enforced if at all in existence, there is a large room for reaching adulterated groundnut oil to wholesalers and retailers in the district. If the supplies from other states go unchecked on those two counts, the adulterated edible oils flow to the retailers through wholesalers.

From the analysis of the statistical data made so far the hypothesis - Adulteration of groundnut oil is pervasive- with which we started, stands to be rejected. However, the

hypothesis that groundnut oil sold in the market is adulterated is to be accepted in reality. Outwardly this statement seems to be baseless; it can be proved by taking into account the provisions of PFA act. According to the provisions of the act the unadulterated groundnut oil has to satisfy certain laboratory tests. These tests are in terms of certain parameters prescribed by the act. The groundnut oil has to conform to the minimum or maximum parametric values or the value lying between these two. In case of groundnut oil normally four tests have been conducted :

- (1) Butyro Refractometer Reading
- (2) Saponification value,
- (3) Iodine value ,
- (4) Acid value and
- (5) Beller Test.

For each of these parameters required minimum and maximum values respectively are (1) 54.0 to 57.1, (2) 188 to 196, (3) 85 to 99, (4) not more than 6.0 and (5) 39 C to 41 C. The gaps between the minimum and maximum parametric values being large for each of the parameters, the groundnut oil can tolerate easily 20 percent of some specific substitute edible oil/oils which goes undetected in the laboratory though it is really a mixture of oils (for details refer to Table No.6). The equivalent edible/non edible oils like castor oil, rapeseed and soyabean can easily be mixed in groundnut oil upto 20 percent. Still the mixtures of these oils with groundnut oil conformed to the parametric values prescribed by law when we experimented those mixtures in laboratories. Because of these norms the increasing supply of low priced substitute edible oils enlarge the scope for

adulteration. In fact the increased availability of relatively cheaper substitutes for groundnut oil, contrary to considered opinion has increased the magnitude of adulteration.

Since the parametric values of the food products are determined at the national level and are based on random sampling technique the minimum and the maximum of each parameter for each article are prescribed as standards. Hence they become the minimum standards, i.e. PFA Act prescribes minimum qualifying standards for every article e.g. the trader can easily manipulate this concept by mixing 2 kgs of castor oil with 10 kgs of groundnut oil whose B.R. reading, saponification value and iodine values are parallel. This can be seen from the table number given below, while calculating the parametric values of the adulterated resultant groundnut oil in the ratio of 10 kgs groundnut oil to 2 kg of castor oil. We will have to take into consideration the parameters of analysis given in PFA Act for groundnut oil and the parameters given by Hindustan lever for castor oil. (As the standards for castor oil are not prescribed in the PFA Act). Accordingly we have taken the mean of the maximum and the minimum values of both the commodities so as to bring the deviation to the minimum. The mean of B.R. reading for groundnut oil is taken as 55.5 hence for 10 kgs B.R. reading of groundnut oil is equal to $55.5 \times 10 = 555$ B.R. reading for 2 kg castor oil is equal to $69 \times 2 = 138$. By adding

both B.R. values $555+138=$ the sum total is 693, this is for 12 kgs of mixture. When this is divided by 12 kgs the B.R. reading will become $(693 \div 12 = 57.7)$ which fits almost at maximum range laid down in the act. Even though it slightly exceeds that can be exempted on the grounds of personal error at the analytical level. As our calculations are based on the arithmetical mean value of maximum and minimum of B.R. reading, there is slight variation from the maximum limit instead, if we would have taken the prescribed minimum values of B.R. then result would have been perfectly within the prescribed limit. In a like manner, the saponification value, iodine value, Bellier Test and Acid values of mixtures are calculated as shown in the table. All these values exactly fit themselves within the prescribed range of variations.

Such type of adulterations go often undetected unless the analyst goes for a specific test of TLC (Thin Layer Chromatography) for castor oil. Often this test is not conducted by various laboratories, it is observed. There are some other specific tests for specific oils.

Area	1988			1989			1990			1991			1992							
	R	W	Total	R	W	Total	R	W	Total	R	W	Total	R	W	Total					
Corporation Area	-	66 (81.5) [67.3]	32 (69.0) [32.7]	98	12 (6.0) [10.3]	67 (93.0) [57.3]	38 (63.3) [32.5]	117	15 (54.0) [9.7]	12 (9.45) [78.0]	19 (68.0) [12.3]	155	20 (65.0) [12.2]	118 (89.0) [72.0]	26 (60.2) [15.8]	164	1 (3.0) [3.7]	11 (48.0) [40.7]	15 (60.0) [55.6]	27
Municipal Area	05 (36.0) [17.9]	13 (16.1) [46.4]	10 (22.0) [35.7]	28	03 (15.0) [15.8]	02 (03.0) [10.5]	14 (23.3) [73.7]	19	9.4 (14.0) [44.4]	04 (09.2) [44.4]	01 (04.0) [11.2]	09	01 (3.0) [5.6]	05 (3.5) [27.8]	12 (29.4) [66.6]	18	19 (54.0) [57.6]	07 (30.4) [21.2]	07 (28.0) [21.2]	33
Rural Area	09 (64.0) [60.0]	02 (2.4) [13.3]	04 (9.0) [26.7]	15	05 (25.0) [31.2]	03 (0.40) [18.8]	08 (13.4) [50.0]	16	09 (32.0) [45.0]	03 (2.3) [15.0]	08 (28.0) [40.0]	20	10 (32.0) [41.7]	10 (7.5) [41.7]	04 (10.4) [16.7]	24	15 (43.0) [65.3]	05 (21.6) [21.7]	03 (12.0) [13.0]	23
Total	14	81	46	141	20	72	60	152	28	128	28	184	31	133	42	206	35	23	25	83
Grand Total	141	152	184	206	206	83														

Table VI.B : Number of samples reported Adulterations

Corporation Area	-	8	-	8	1	2	-	3	1	1	-	2	1	1	-	2	1	-	-	2
Municipal Area	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	5	-	-	5
Rural Area	-	-	-	-	-	1	-	1	2	1	-	3	-	-	-	-	3	-	-	3
Total	-	-	-	8	1	3	2	7	3	2	-	5	1	1	-	2	9	1	-	10

Table VI.C : Number of cases launched against reported adulterated samples

Corporation Area	-	7	-	7	1	2	-	3	1	-	-	1	-	-	-	1	-	-	-	1
Municipal Area	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	3
Rural Area	-	-	-	-	-	1	-	1	1	1	-	2	-	-	-	-	3	-	-	3
Total	-	-	-	7	1	3	-	4	2	1	-	3	-	-	-	6	1	-	-	7

(3) Figures in squared brackets indicate distribution trade channelwise

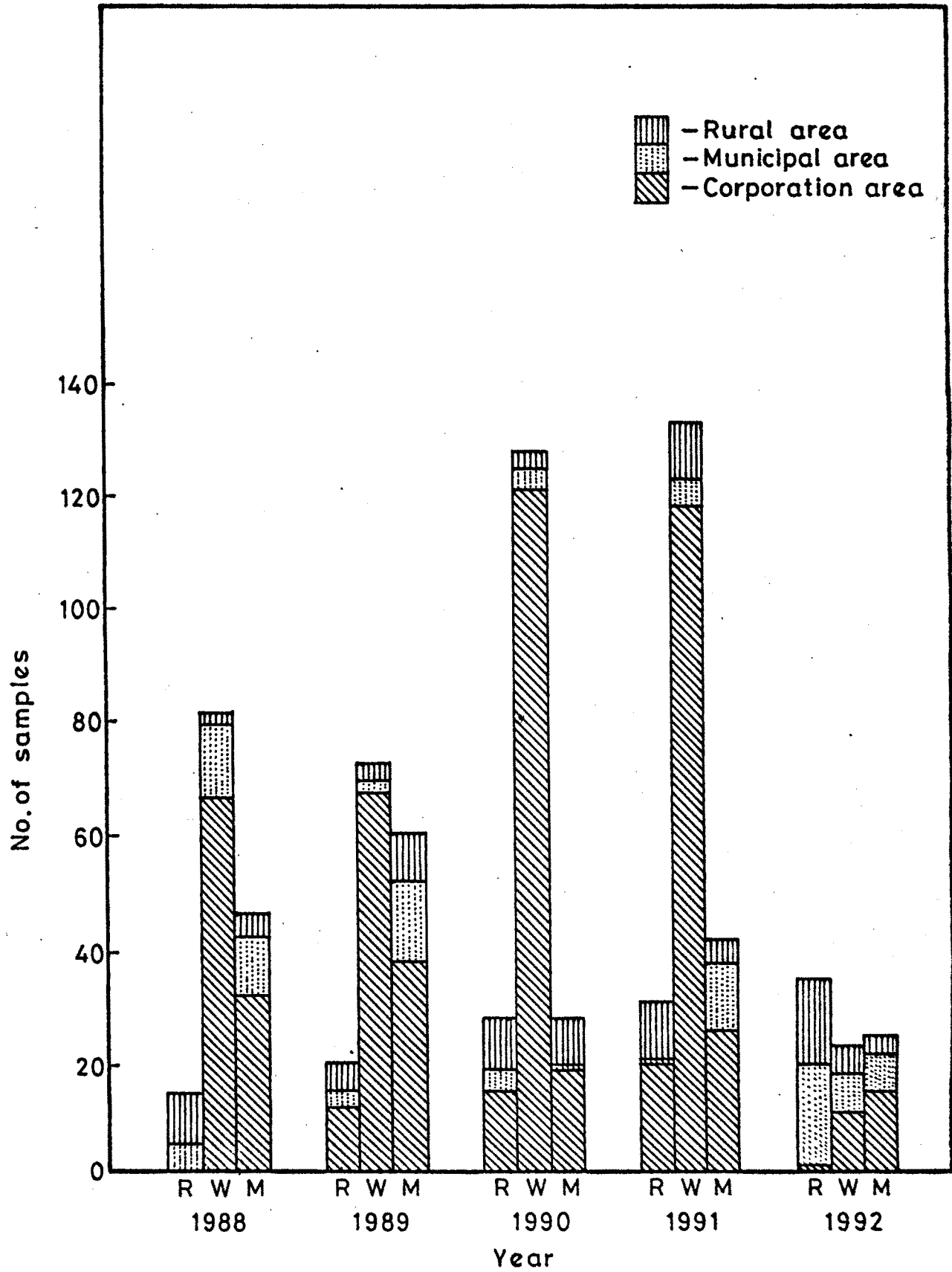


Fig. NO. OF SAMPLES DRAWN BY F.D.A. KOLHAPUR .

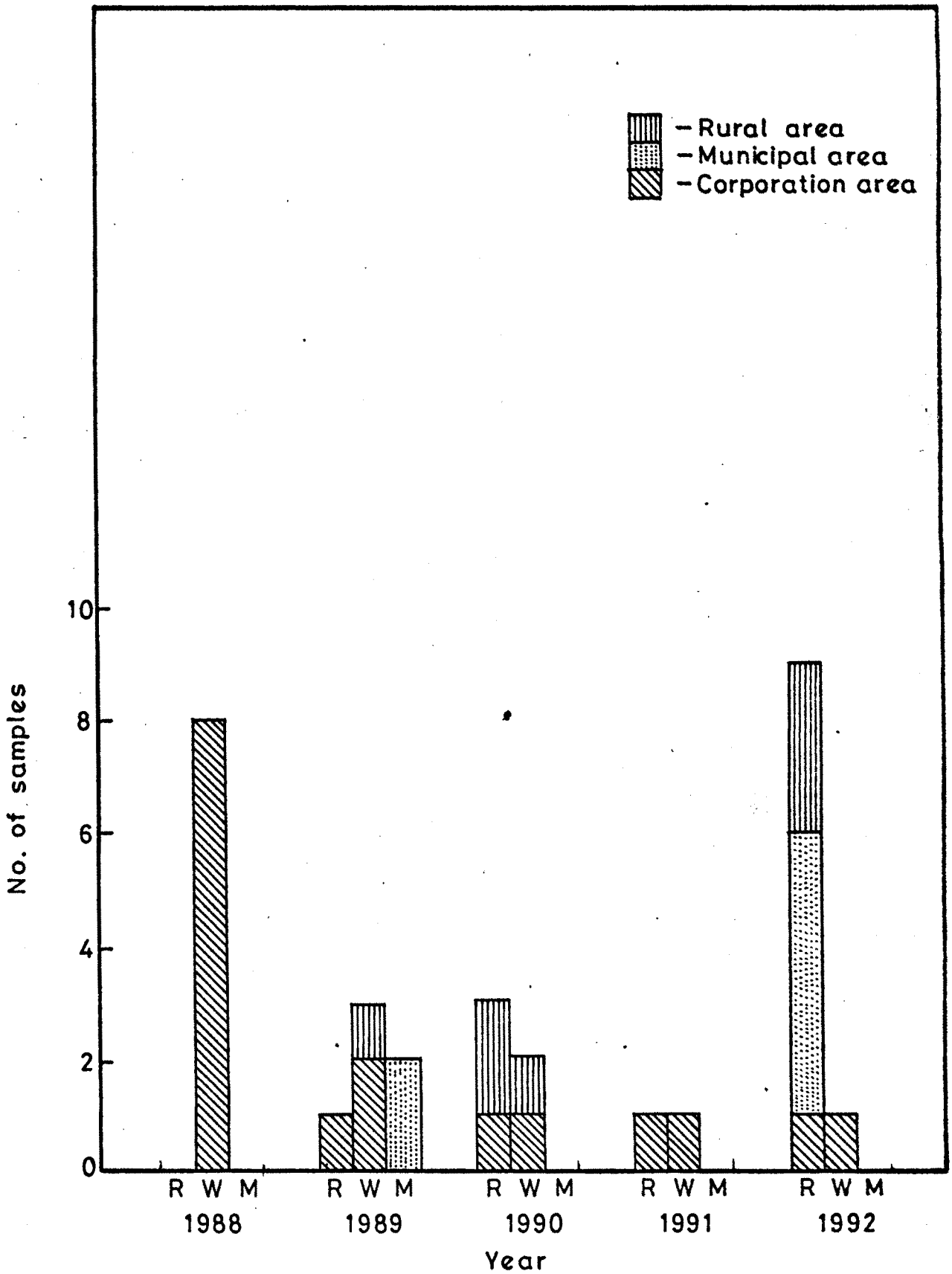


Fig. NO. OF SAMPLES REPORTED ADULTERATED.

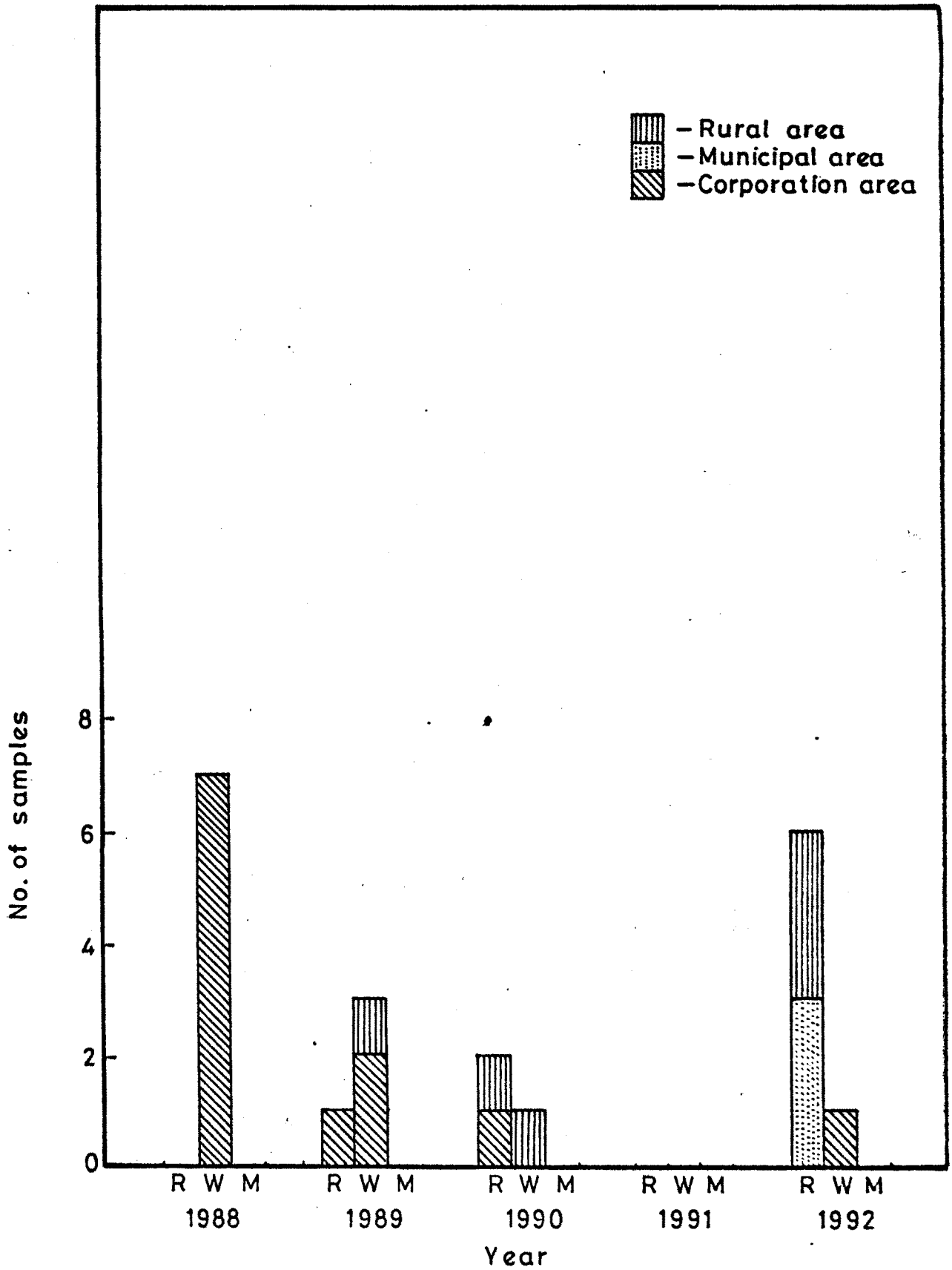


Fig. NO. OF SAMPLES IN WHICH CASES LAUNCHED.