



An Analysis of Brand Preference and Market Share of Neem Based Pesticides in Kolar District, Karnataka

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Abstract: *Neem is a bio-chemical factory as it contains several chemical constituents that are attributable to its miracles. It is potentially a substitute for synthetic pesticide used in crop production. The present study was conducted to know the brand preference and market share of neem based pesticides. The study was conducted in Kolar district because it is one of the important fruits and vegetables growing district in the state. The results revealed that in neem oil, T. Stanes & Co. has the highest market share (35.36 %), followed by Parry's Bio (32.04 %) and Vijaya (17.68 %). In neem cake, local neem cake has the highest market share (52.34 %) followed by Parry's bio (22.43 %) and T. Stanes & Co. (14.02 %). Neemarin brand of Biotech International was the first preference among the farmers (30 %) followed by Nimbecidine EC brand of T. Stanes Company (23.33 %) and Neemazal of Parry's Bio company (20.00 %). The main factors influencing farmers' preference for various neem based pesticides were retailers influence followed by quality and price. The major problems faced by the retailers in marketing of neem based pesticides was less demand compared to synthetic pesticides followed by slow results and lack of information about the products. From this it can be concluded that there is a great scope for creating awareness among the farmers about neem based pesticides through campaigns and field demonstrations by KVKs and State Department of Agriculture.*

Introduction

India is largely an agrarian society with more than 10 crores families dependent on farming for a living. The contribution of the agriculture sector to Indian GDP has declined from 19.34 per cent in 2001-02 to 15.79 per cent in 2013-14. This reduction in percentage contribution to GDP can be attributed to structural changes in the economy and increased



opportunities in manufacturing and services sector. As the mouths to be fed increase, there is a need to increase the total yield of food grains in India.

Pest control, as practiced today in most developing countries relies mainly on the use of imported pesticides which has to be reduced. Although pesticides are generally profitable on direct crop returns basis, their use often leads to the contamination of terrestrial and aquatic environments, damage to beneficial insects and wild biota, accidental poisoning of humans and livestock, and the twin problems of pest resistance and resurgence.

In agriculture, neem and by products such as seed cake, oil and powder are used as bio-pesticides, fungicides and organic manures. Scientists anticipate that neem tree will create a new era in the pest control and thereby solve other ecological problems affecting the world. Recently, a number of agro-chemical businesses have realized the potential of neem and there has been a growing attention towards neem as an organic alternative to industrial pesticides.

Neem pesticide is a natural product, absolutely non-toxic, hundred per cent biodegradable and eco-friendly. It is suited for mixing with other synthetic pesticide and in fact enhances their action. None or lesser quantity of synthetic pesticides needs to be used, thereby reducing the environmental load. Several synthetic pesticides being single chemical compounds cause easy development of resistant species of pests. Neem consists of several compounds hence development of resistance is impossible. Neem does not destroy natural predators and parasites of pests thereby allowing these natural enemies to keep a check on the pest population. Neem also has systemic action and seedlings can absorb and accumulate the neem compounds to make the whole plant pest resistant. Neem has a broad spectrum of action active on more than 200 species of pests. Neem is harmless to non-target and beneficial organisms like pollinators, honey bees, mammals and other vertebrates.

Further, Neem works as a Pesticide, Bio-fungicide, Soil conditioner and organic manure, Fertilizer efficiency improving product, feed to livestock and storage control.

Methodology

Kolar district was purposively selected for the study to examine the market share and user's preference for neem based pesticides, since it is one of the important fruits and vegetables growing district in the State. Kolar district is the largest producer of tomato in Karnataka. The area is known for intensive use of pesticides for cultivation of fruits and vegetables. From the district, two taluks were selected viz., Kolar and Mulbagal, which have highest cropping area under fruits and vegetable crops particularly tomato, potato, cabbage, cauliflower, chilli, beans and mango. As a result, farmers have to depend on pesticides to protect the crops from pests and diseases. For the purpose of detailed study, only neem based pesticides, which were used for fruits and vegetable crops were considered.

From these two taluks, five villages each were randomly selected and from each village six farmers using neem based pesticides were selected randomly. Thus, total samples of 60 farmers were selected. In addition, 30 pesticide retailers from two taluks were also



selected randomly to study the market share and problems faced by them in selling neem based pesticides.

The primary data regarding pesticide use details, user's preference were collected through pre-tested schedule by personal interview method. Similarly, from retailers' share of different pesticides, trade practices, business details, different brands of neem and non neem based pesticides and problems relating to marketing of pesticides were obtained.

The secondary data regarding pesticides use and retailers in the taluks were collected from Department of Agriculture, Govt. of Karnataka, Kolar district.

The data was analysed using Fried man test two-way analysis of variance by ranks and Garret ranking technique.

Fried man test two-way analysis of variance by ranks

This statistical tool was employed for analysing the user preference of neem based pesticides. Ten major factors were considered and the factors were analysed and ranked accordingly. When the data from k matched samples are in at least an ordinal scale, the test is useful for testing the null hypothesis that the k samples have been drawn from the same population.

The value of Xr^2 is given by the formula:

$$\left[\frac{12}{[N * k * (k+1)]} \right] * \sum R^2 - [3 * N * (k + 1)]$$

k= No. of columns (treatments)

N= No. of rows (blocks)

R=Sum of the ranks

Garret ranking technique

Garrett's ranking technique was used to compute following 8 factors. Retailers were asked to rate the factors based on their importance which helped to know the problems in marketing of neem based pesticides.

Garrett's formula for converting ranks into per cent was given by

$$\text{Per cent position} = 100 * (R_{ij} - 0.50) / N_j$$

Where R_{ij} = Rank given for ith item by jth individual

N_j = Number of items ranked by jth individual



Results and Discussion:

The companies and brands of neem oil and neem cake in Kolar district is presented in Table 1. The table revealed that there were five companies selling neem based pesticides in Kolar district and the different brands of neem oil and neem cake were presented.

The market share of different neem oil producing companies is furnished in Table 2. The table revealed that the neem oil (Insecticide) was sold by six companies with total sales of Rs. 90.5 lakhs during 2015-16. Among these companies, T.Stanes & Co. had the highest market share of 35.36 per cent with a total sale of Rs. 32 lakhs, followed by Parry's bio with market share of 32.04 per cent. Whereas, Vijaya had 17.68 per cent and Pest Control India had a share of 11.05 per cent.

The market share of different neem cake producing companies is indicated in Table 3. The table revealed that the neem cake (Fungicide) was sold by five companies in the study area and the total sales was Rs. 53.5 lakhs during 2015-16. Among these companies, local neem cake has the highest market share of 52.34 per cent with a total sale of Rs. 28 lakhs followed by Parry's bio with 22.43 per cent. While, T.Stanes and Co. had a share of 14.02 per cent and Vijaya with 9.35 per cent.

The factors influencing farmers' preference for various neem based pesticides is furnished in Table 4. The mean user preference found to be highest with retailers influence (93.67) followed by quality (92.00), price (89.00) and health (81.00). Further, the least user's preferential rank was noticed as effective and ease of use (48.33), followed by advertisement (43.67) and media (43.33). The statistical test established that there is a significant difference in the preferential ranks among the factors under study. The data subjected for Friedman test ($Xr^2=179.14$) indicate that the preferential ranking among 8 factors under study found to be significant.

The details of farmer's preference for various brands of neem based pesticides in Kolar district is furnished in Table 5. The table indicated that among the most popular neem based pesticides, the first preference was given to Neemarin brand of Biotech International (30 %) by the sample farmers followed by Nimbecidine EC brand of T.Stanes company (23.33 %) and Neemazal of Parry's bio company (20.00 %) as their second and third preference respectively. The other brands like Vijaya (16.67 %) and Neem baan brand of Pest Control India (10.00 %) were also popular among the farmers in the study area.

The information on problems faced by the retailers in marketing of neem based pesticides is furnished in Table 6. It is clear from the table that less demand compared to synthetic pesticides ranked I (66.60) followed by slow results ranked II (64), lack of information about the products ranked III (62.53) and the least ranking IV (55.93) was due to products being expensive.



Conclusion

There is a great scope for creating awareness among the farmers about neem based pesticides through campaigns and field demonstrations by KVKs and State Department of Agriculture. The companies manufacturing and marketing of neem based pesticides have to workout aggressive marketing strategies through advertisements and conducting field demonstrations to popularize their quality products at affordable prices. In the recent past, farmers are preferring to use more and more organic products because of their health and environmental benefits of neem based products even though the products are little expensive. Government should encourage farmers to use neem based pesticides by providing subsidy through field extension functionaries of Department of Agriculture and KVKs of State Agricultural Universities because of their various benefits to soil, health and environment.

Note: This is a part of M. Sc. (Agri.) in AgMaco of senior author entitled “An Analysis of Brand Preference and Market Share of Neem Based Pesticides in Kolar District” Submitted to UAS Bengaluru during 2016

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Table 1: Details of brands of neem based pesticides in Kolar district

Sl. No.	Company	Neem oil brands	Neem cake brands
1.	T.Stanes & Co.	Nimbecidine EC(0.03, 0.01, 0.15, 1, 5% Azadirachtin)	Anandam Shubam
2.	Parry's bio	Neemazal F 5% Azadirachtin Neemazal T/S 1% Azadirachtin Indika 0.15% Azadirachtin Parryneem0.05-0.01% Azadirachtin	Parryneem Avana



3.	Vijaya	Vijay neem	Organic gold
4.	Pest Control India	Neem baan 0.03, 0.15, 1, 5%	Eco garden
5.	Biotech International Ltd.	Neemarin EC 0.03,1%	-

Table 2: Market share of different companies selling neem oil (Insecticide) in Kolar district (n= 30)

Sl. No.	Neem oil (Insecticide) companies	Amount (Rs. in lakhs)	Market share (%)
1.	T.Stanes & Co.	32	35.36
2.	Parry's bio	29	32.04
3.	Vijaya	16	17.68
4.	Pest Control India	10	11.05
5.	Biotech International Limited	3.5	3.87
Total		90.5	100.00

Table 3: Market share of different companies selling neem cake (Fungicide) in Kolar district (n= 30)

Sl. No.	Neem cake (Fungicide) companies	Amount (Rs. in lakhs)	Market share (%)
1.	Local mills	28	52.34
2.	Parry's bio	12	22.43
3.	T.Stanes & Co.	7.5	14.02
4.	Vijaya	5	9.35
5.	Pest Control India	1	1.86
Total		53.5	100.00

Table 4: Factors influencing farmers' preference for various brands of neem based pesticides in Kolar district (n= 60)

Sl. No.	Factors	Mean	Rank	Xr ²
1.	Retailers influence	93.67	I	
2.	Quality	92.00	II	
3.	Price	89.00	III	
4.	Health	81.00	IV	
5.	Ready availability	77.00	V	



6.	Brand image	50.67	VI	179.14**
7.	Packaging	48.67	VII	
8.	Effective & ease of use	48.33	VIII	
9.	Advertisements	43.67	IX	
10.	Media	43.33	X	

** - Significant at 1 per cent level

Table 5: Farmers preference for various brands of neem based pesticides (n=60)

Sl. No.	Brands	Numbers	Percentage to the total
1.	Neemarin	18	30.00
2.	Nimbecidine EC	14	23.33
3.	Neemazal	12	20.00
4.	Vijaya	10	16.67
5.	Neem baan	6	10.00
Total		60	100.00

Table 6: Problems faced by retailers in marketing of neem based pesticides (n=30)

Sl. No.	Factors	Garrett score	Ranks
1.	Less demand compared to synthetic pesticides	66.6	I
2.	Slow results	64	II
3.	Lack of information about the products	62.53	III
4.	Products are very expensive	55.93	IV
5.	Incentives to the traders are negligible	39.37	V
6.	Not effective against the pests	33.47	VI
7.	Bad smell	27.1	VII