

AN ANALYSIS OF THE NATURE OF THE MARKET FOR AGROCHEMICALS IN SRI LANKA

Renton de Alwis

Introduction

Attempts at explaining the conditions of markets that exist or are theoretically conceived to exist have taken a large amount of time and effort of economists in the classical, neo-classical and 'modern' schools of thought. The emergence of oligopolistic market models, in their present form, was the result of the apparent weakness of the imperfect or monopolistic market models to adequately explain the competitive market conditions which existed among groups of firms producing 'similar' goods (not entirely homogeneous).

Collusive oligopoly which is a form of market behaviour of firms to avoid uncertainty arising from oligopolistic interdependence is most common in the modern world and has been adopted in markets of most developing country economies too. In collusive oligopoly the group of firms involved in marketing a similar product enters into a tacit collusion; mostly not 'made' but, 'evolved'. Present in these markets are two types of collusion, cartels and price leadership. Both forms have been analysed extensively by Fellner.

It is necessary to emphasize that cartels should not be mistaken for legally formulated entities. In most instances they are tacitly formed with the objectives of joint profit maximisation and for the market sharing. These sometimes are regarded as unspoken gentlemen's agreements between firms. The concept of price leadership in collusion is a situation where the firm with the strongest market share, due to marketing efficiency, its established nature, or long presence in the market etc., will set the price of the product for others to follow.

The market for agro-chemicals in Sri Lanka (defined to include only weedicides and pesticides and leaving out fertilizer and fungicides) has several features of the oligopolistic market situation and is closer to an oligopoly model than to any other model of market behaviour.

There are nine firms that are involved in the marketing of weedicides and pesticides in Sri Lanka. They are Hayleys Ltd., (Haychem); Baur's Ltd., Lankem Ltd., Harrison & Crossfield Ltd., (Harcross); Mackwoods Ltd; J. L. Morrison & Co. Ltd., Chemenex Ltd; Ceylon Petroleum Corporation; and Chemical Industries Co. Ltd.. Of these firms Hayleys Ltd., is at present identified as the market

leader with a 30-40 percent share of the market. Harrison and Crossfield Ltd., is second, with Lankem Ltd., and Ceylon Petroleum Corporation with shares ranging from 15-20 percent for each. The other firms have only a small share of the market. Baur's Ltd., which was a pioneer in dealing with agro-chemicals in Sri Lanka is at present moving away from the pesticide and insecticide market, and concentrating on the fertilizer market. ●

In May 1980 the government enacted a bill for the control of pesticides to provide "for the licensing of pesticides, to regulate its import, packing, labelling, storage, formulation, transport, sale and use." It was intended to appoint a licensing authority in the form of a registrar for the implementation of the law. While the law itself was limited to pesticides and excluded other agro-chemicals even the Registrar envisaged under this law has not been appointed upto the present time. The machinery for the implementing provision of this law to be enforced, has not been established yet. The only provision that the firms adhere to at present is the labelling requirements specified by this law.

The market organization and regulatory controls under the above situation are carried out through 'agreements' reached between the Ministry of Agriculture and the firms. One such example is the unwritten law that firms should not surpass a limit of 125 percent markup from the price of the base chemical in marketing products. The other feature of the market is the collusion that exists between firms. Each firm is generally aware of the others actions and competition occurs mostly through pricing strategies with a view to increasing market share.

Most of the firms in the market are backed by agro-chemical multinationals for the provision of their base chemicals and patented products; for example, Hayleys-Bayer; Harrisons-Ciba-Geigy; Lankem-Shell Co., C.P.C. F.M.C. Corp., of U.S.A. etc. Some of the firms have their parent company base products patented in Sri Lanka and therefore, enjoy the monopoly of sales until the patent period lapses. There is another situation where substitutes for patented chemicals are obtained from countries for cheaper prices (mostly from Taiwan) by firms and sold in the market or are denoted with the patented products.

Method of Study

The study is based on evaluating the marketing strategies adopted by selected firms at the user level. Five firms were originally selected namely, Hayley's Ltd., Harrison's Ltd., Lankem Ltd., Ceylon Petroleum Corporation and Mackwoods Ltd., However, it was revealed during the study that only products of the first four firms had a wide distribution in the areas surveyed and conclusions drawn are from among the products sold by these four firms. The author, with the assistance of two investigators/assistants, carried out a survey in the Polonnaruwa, Anuradhapura and Kurunegala districts during July/August 1982. The survey period was during the Yala Crop and information was obtained both for the 1982 Yala and for the 1981/82 Maha season. (In certain parts of the Polonnaruwa district, three seasons are cultivated.)

The survey was carried out at two levels. At the farmer level, a questionnaire survey was conducted, while interviews were carried out with agro-chemical dealers, K.V.S.S. and other Agricultural Service Centre personnel at the second level.

Due to the constraint imposed by the limited time for the survey in each district

(3-4 working days) the sample size for the questionnaire had to be limited to 30-35 per district (total for three districts-97). The ideal would have been a 300-350 sample size. The distribution of this limited sample was based on the following criteria: (1) Sample dispersion to represent at least 80 per cent of the area under paddy in each district; (2) The inclusion of farmers belonging to different income levels; and (3) Farmers representing different age groups.

This however, was not maintained uniformly for each district covered, but is valid for the whole sample. Some of the weaknesses in sampling were overcome to a great extent through the method of direct interviews. Since the researcher himself conducted the interviews with the assistants where necessary, it was possible to select a representative sample.

More than 60 percent of the interviews were carried out in public places such as village tea boutiques, bathing places and in the fields; while the rest were conducted on visits to farmers' houses.

In addition, an average of 15 interviews for each district was held subsequently with Agro chemical dealers, 8 Agricultural Service Centre personnel and 3 K.V.S.S.

At the level of the agro-chemical firms, interviews were carried out with two managers and an assistant manager of three of the firms for obtaining information on staff structure, distribution of products and advertising campaigns and also to ascertain the nature of product differentiation practices followed by the firms.

In order to obtain information on the price structure of weedicides and pesticides the Central Bank Rural Credit Department Publication "Statistical Information on Retail Prices of Agricultural Inputs in Sri Lanka" June and Sept. 1982 issues were used.

Price Structure and Differentiation of Products

As indicated earlier, firms marketing agro-chemicals, import their base chemicals such as Carbofuran, Monocrotopus, B.P.M.C. (insecticides); or M.C.P.A. Propanil, Paraquat, (weedicides) in bulk quantities and mix and bottle or pack them in a variety of bottles or pack sizes for presentation in the market. The price structure seen in the data collected indicates that there is a variation of prices among firms within a given range. The price and market leader in the market is clearly Haychem Ltd, as is seen both through the pricing structure as well as farmer preferences. It may be pointed out that it is possible for some firms to give large reductions in price in order to capture a large market share with the use of cheaper substitutes of chemical compounds manufactured in Taiwan as against the market leaders who in the main make their purchases through collaborating multinationals. Evidence was found, however, of cases where even firms operating in collaboration with multinationals obtained their base chemicals from Taiwan and mixed them with the 'big name' product for higher prices and profits.

Product differentiation is carried out in five ways, namely: (1) Presentation in various bottles and pack sizes; (2) Presentation in liquid, granule or dust form; (3) Variations in bottle and pack presentations (measuring cups as tops, plastic containers and colourful labels); (4) Variations in product strength; and (5) Variation in trade names. In addition the use of 'prestige' trade names and marks of the link company is also practised. For example Haychem-(Bayer), Lankem-(Shell), Harcross-(Ciba-Geigy), Baur's-(Sandoz). At the farmer level the marketing strategy also extends to the use of the name of the country in which the link company is situated. eg. German base-chemicals are made out to be superior to all others, US or Swiss to all others, etc.

Nature of Non-Price Competition

Non price competition in the agro-chemicals market is carried out at three different levels, namely: (a) Recruitment of marketing personnel and relationships with the agricultural development officials and research organizations, (b) Nature of advertising campaigns and adoption of other methods of persuasion at the regional level, and (c) Selling of products at the farmer level and the nature of factors influencing sales. Each of these levels of influence should not be taken independently, as they extend their influence to all levels of the marketing system.

Of the five firms included in the study, four had at least one ex-Agricultural Department person on their staff at the executive level. The market leader Haychem Ltd., is headed by an ex-Agricultural Department official together with six other executives who have all been direct recruits from the Department. Five of these executives operate at the district demonstrations and field trials. Of the 28 distributors attached to the firm on a district basis two are ex-Agricultural Department officials who have worked with the manager while he was employed in the Department.

In the case of Harcross Ltd. of five executives one is an ex-Agricultural Department person. This person is employed by the link company (Ciba-Geigy) as their representative in the country.

The principle behind recruitment of Agricultural Department officials by the agro-chemical firms, according to two of the managers interviewed, is that they have the necessary background and understanding of the market. In addition, it was observed that they commanded respect among the Agricultural Department officials in operating at the farmer level which is an important factor of influence in product promotion.

All the firms submit samples of their products (the ones to be newly introduced to the market) to the Department's research organizations (Mahailuppallama, Karadian Aru, Mahakandura and Paranthan), for carrying out field trials. Some of the results are published by the Department in their instructional publications to field extension staff. Some of these field trial results are also presented to the Agricultural Inspectors in the field, at meetings held periodically, as products that could be recommended to the farmer. Firms also use these field trial results, released by the Agricultural Department, in their advertising campaigns and these are sometimes also included in the labels. Of the farmers interviewed, 43 percent indicated that they

followed the instructions of the Agricultural Inspector and/or KVS in choosing the type of chemical to use. This response was 48 per cent for pesticides use and 38 per cent for weedicides use. The higher dependence on the Agricultural Department staff for pesticides is explained by the fact that the farmer wants to ensure that he is using the right chemical for the right pest. In weedicides there was a standard practice of using Propanil or MCPA within 5 to 4 days of sowing or transplanting by 61 per cent of the farmers who used weedicides, expecting control of sedges and broad leaf weeds. There are some farmers (23%) who use a second application between 10-21 days too. In the case of pesticides there were 33 percent of the farmers who used it as a preventive measure while 56 percent used a chemical depending on the nature of the problem encountered.

The Agro-chemical firms have established very close links with the agricultural officials who work at the field level and this is done in various ways: (1) Conduct of joint field demonstrations, (2) Conduct of meetings for farmers with lunch and/or other facilities provided for the farmers, (3) Through personal contact with KVSS, (4) Through instructions given by superior officers, who are friends of the firms. In the Polonnaruwa District a case was noted where a KVS recommended against the use of a brand of pesticide which he himself positively recommended during the earlier season. The reason given was that the product strength was not the same, meaning that there was greater dilution. According to the firm that markets the product there is no way in which this field staff member could have obtained information regarding product preparation and admitted that this area was one that had been 'Neglected' due to a lapse in marketing strategies during that season.

Apart from the agricultural officials operating at the field level the firms also compete to obtain the support of farmer leaders. The farmer leaders are identified by the dealers and are contacted to conduct field demonstrations, to organize meetings etc. In the Anuradhapura District there was an interesting case of product promotion through a voluntary organization. The principal agent for the District was a member of a leading service organisation/social club and was successful in marketing the products of his firm to its members who were engaged in cultivation. (Anuradhapura has a unique middle class colonization scheme at Saliyapura).

The selection and choice of dealers and the cultivation of their loyalty is another form of competition adopted by the firms. The 'success' of the lead firm in the market is

attributed to this factor by dealers, farmers, and also other competitors. The agro-chemical dealer has in the farming community a position similar to an ayurvedic physician. Most farmers bring their problems to him and expect him to provide them with the most effective prescription. At least two of the five firms have identified the need to cultivate these dealers and are 'looking after them' in terms of providing extra market benefits. It was revealed during the study that there was a high degree of product preference for the products of a specific firm in the areas where the dealer was the sole agent of the firm selling more than 80 percent of that firm's products. There was also a relationship between product popularity and the age and experience of the dealer.

The Ceylon Petroleum Corporation was in the unique position of being able to market their products through the sales outlets for petroleum products. In some instances the MCPS sales outlets and the Agricultural Service Centres are located in the same premises. Some MPCs also sell products of other firms.

The other form of non-price competition in the agro-chemical market is advertising. Except for the CPC all other agro-chemical firms have very heavy advertising budgets and employ professional marketing personnel in their efforts. Haychem's has a department for marketing while Harcross has a marketing manager with experience in marketing at Lever Brothers, a firm known as the training centre for local marketing personnel.

Advertising through attractive posters, mostly printed by the link firms abroad, is one of the ways in which the firms compete with each other. These posters are exhibited at the dealer outlets, Agricultural Service Centres, tea boutiques, shops and even in buses and schools. The agro-chemical posters stand out as very high quality ones in terms of printing when compared to all other poster advertising used in promotional work in Sri Lanka. As expressed by a dealer, the different firms engage in a 'poster war' at the beginning of each cultivation season. The distribution of gifts and complimentary items at the commencement of the year is another form of promotional work carried out by these firms.

Radio advertising is carried out on a very competitive basis by four of the firms, i.e. Haychem, Harcross, Baur and Lanken. There is very intensive advertising during the cultivation seasons and is carried out mainly in the regional broadcasting networks (Rajarata and Ruhunu Sevaya). Most advertisements are broadcast at prime listener times i.e. 6.15 a.m. to 7.30 a.m. and 6.30 p.m. to 9.30 p.m. on weekdays and 12 noon to 2 p.m. on weekends. Haychem also has a serial radio-play,

based on the theme relevant to the farming community, broadcast on Friday evenings. Harcross had entered the field of TV advertising through the inclusion of TV spots.

In addition film shows on the use of agro-chemicals are organised at Agricultural Service Centres. The films are produced by the link companies and are geared to promoting products through highlighting the 'advantages' to be gained by their use. Haychem and Lanken have mobile units for this purpose.

Conclusions

An overview of the market structure for agro-chemicals in Sri Lanka indicates that the market is non-price competitive. While there are marginal differences in the prices of products between firms, there is a general 'stockiness' in terms of downward revisions to capture a share of the market by individual firms, and no upward revisions are made due to the fear of others not following suit.

The actual competition therefore takes place in other forms such as product differentiation, employment of personnel with connections to the Agricultural Department, the extension system and research organizations, cultivation of the loyalty of dealers, contacts with extension staff, and advertising and product promotion work.

Under the above situation the following disadvantages are found by the Government.

1. There is unnecessary differentiation of products as the same base chemical is presented under many brand names,
2. The farmer gets a raw deal by the firms that use inferior chemicals. These firms are able to expand more funds for promotion and conduct of meetings and to use other methods of persuasion, since their profit margin is higher than their competitors.
3. Due to the non existence of adequate controls the agro-chemical firms try-out products on the farmer and do not maintain longterm interests.
4. Actual agro-chemical prices could be very much lower than what they are. This is reflected in the recent Government appeal to these firms to bring down prices.
5. Most firms do not indicate the possible harmful effects of the use of these chemicals and there is no state machinery to ensure that such indications are made at all times.