

## **CO-ORDINATION OF RESEARCH SPONSORED BY SAAGA**

**JM KOTZÉ**

*DEPT. OF MICROBIOLOGY AND PLANT PATHOLOGY, UNIVERSITY OF PRETORIA*

Towards the end of the 1960's the avocado growers were a disorganized group without much guidance and no co-ordination. A handful of individuals exported fruit, mostly by air and considered sea exports as risky and riddled with problems such as internal leaf discoloration, pulp spot and rotting. By 1966, the industry had expanded considerably and it became obvious that large quantities of fruit had to be sent by sea to the developing markets in the U.K. and France. The biggest problem at that stage was to regulate the flow of fruit to the overseas markets and to deliver a product which was acceptable to the buyers.

In 1967, the Avocado Growers' Association was founded in my office at Westfalia and it later became the South African Avocado Growers' Association as we know it today. In the initial stages, the Association had a single purpose viz., co-ordinated marketing and this was done voluntarily and was based on information supplied by the members.

The fact that we are many weeks away from the point-of-sale is the cause of fruit quality problems and considerable post-harvest disorders and diseases. These factors effect the market value with the result that SAAGA was compelled to accept an additional responsibility viz., research in 1974.

The need for solutions of post-harvest problems was great and all the research efforts were initially focused on these problems. However, with the expansion of the industry, Phytophthora root rot became a problem of immense magnitude.

In 1974, SAAGA for the first time made R5 000 available for research. I became co-ordinator of research sponsored by SAAGA in 1977.

Research stands on 3 legs, viz.

1. Research workers
2. Money
3. Facilities.

If any one of these legs is weak, the whole structure suffers.

SAAGA could only provide money but had no research workers, equipped laboratories or research farms. We had to find the other legs outside SAAGA and were lucky to obtain the support of a big grower, Westfalia Estate, to initiate the first observations and to start with research. Later Hall & Sons and Letaba Co-op also became involved in research. SAAGA contributes only to part of the costs of research done by these groups. Gradually, the Universities of Natal and Pretoria became involved in the research effort by granting small amounts of money to students. Today we have a

network of research workers at four universities and several private companies and individuals.

There is a great advantage in the system of utilizing research workers at Universities and SAAGA scores greatly by this system. The time, experience and expertise of highly qualified people are available to SAAGA for relatively very little money. Usually SAAGA only allocates a sum of money for a project but does not contribute anything towards salaries, facilities and infra-structure.

It must be made clear that SAAGA in the present set-up does not have a Technical Service which can be instructed to solve *ad hoc* problems, although the co-ordinator tries to fill the gap by taking such problems to people that can assist. All research is done on a voluntary basis and we can not, for example, instruct somebody to investigate the fruit ripeness problem at Levubu or pulpspot overseas.

It has been suggested by certain misinformed SAAGA members that SAAGA should appoint its own research staff. It is doubtful if SAAGA can at this stage afford the cost of full-time research workers. To the employer the cost of a research worker may be taken conservatively at R30 000 per annum, a figure which includes salary, housing, medical fund, pension, transport and assistance. If an equipped laboratory, materials and further infra-structure are provided, a research worker would cost the employer a minimum of R40 000 per annum. The total research budget of SAAGA for 1981 amounts to nearly R75 000. This means that if one research worker is to be appointed the budget will increase to R115 000, if not more. Who supervises these people? Where do they work? These matters should be carefully considered.

Proper planning of research projects is essential. The first step is to define the problems to be investigated and to determine the priorities of problems. This is done by the *ad hoc* committee and by consulting the growers where-ever possible. The priority of a particular problem is often a matter of opinion, but by taking the average view of a number of assessors one often comes to a fairly reliable assessment. Furthermore, when one can quantify a problem in terms of monetary losses the significance of such a problem can be determined more accurately. When assessing a project we are only concerned with problems of the industry as a whole and not of individuals.

The *ad hoc* committee rates the problems according to the importance, as each member sees it. The following scale is used:

- 1 = a topic of highest priority
- 2 = a topic of high priority, but less urgent
- 3 = a topic of lower priority, but of long-term importance
- 4 = a topic of potential future importance
- 5 = a topic of doubtful future importance.

After the priority of each topic has been determined, we search for suitable workers to do the work. We experience great difficulty in finding research workers. We are looking for experienced men at universities who, can guide students over a period of 3 or more years but most people are already committed to other projects. In spite of the tremendous effort that SAAGA put into post-harvest research we would like to involve

more people. The situation is so serious that we will have to scan the field abroad.

We plan the costs of the projects with the parties involved and keep SAAGA up-to-date. Each research worker submits an application for funds which is scrutinized by the *ad hoc* committee. A budget of all projects and expenditure is then submitted to the Management Committee.

So far, we have identified 82 problems of a technical nature. Twenty-two percent of the identified problems are related to *Phytophthora* and 32% to post-harvest disorders. Together, *Phytophthora* and post-harvest disorders account for 54% of all problems and 46% of the total budget is allocated to these two problems.

At the moment, our problem in SAAGA is not the availability of money, but the availability of research workers and facilities. So far, SAAGA has been fortunate in that research results were positive and remarkably successful. However, we have to bear in mind that it does not always happen this way and that years of research may yield nothing.

So far SAAGA has stimulated research at existing institutions but has not invested in facilities or manpower. The next step will be to support the purchasing of instruments as it becomes necessary at certain research growth points. If a department at a university has made concrete research contributions for a number of years and an instrument is needed to promote further research, we must consider the merits and buy equipment to ensure continued progress. If we do not follow this course, we could be blamed for parasitism.

One of my most important duties is to co-ordinate the research work undertaken at the various universities and private institutions. We inform the director of CSFRI once a year of our research results and they have kept us up-to-date on their research progress.

An important duty is to promote research by finding cooperators in this country and also overseas. During the past year, we have been fortunate in obtaining the services of 3 international avocado experts. Professor GA Zentmyer, world-famous for his work on *Phytophthora*, visited us in February. This was a breakthrough for SAAGA and his visit will have a lasting influence on the avocado industry. We obtained valuable propagation material and resistant root stocks through him. We hope to maintain our good relations and cooperation with him in future. Don Gustafson, an extension worker of the highest calibre, was brought out from San Diego in July. I am sure that his visit was of great benefit to all the growers. Dr Lahav from Israel spent a few days with us through the kind generosity of Westfalia and the co-operation of Dept. of Agriculture and Fisheries.

The successes of research on some of the following problems are remarkable:

*Cercospora spot*: Due to timely research, this problem has lost status and is becoming a low priority project. Most of this work was done at Westfalia Estate in conjunction with the University of Pretoria.

*Fungi associated with post-harvest diseases*: A complex problem where a number of research workers are involved. Prof Zentmyer, a world authority on avocado diseases found this work "the most comprehensive research on avocado fruit anywhere in the world".

*Anthracnose:* Complete control not achieved, but there have been promising results with pre-harvest control measures. This problem will be with us for many years to come.

*Control of post-harvest diseases and disorders:* Doubtful if we will ever solve these problems completely, but considerable research has been done and progress is satisfactory.

*Production of disease-free, high-quality trees:* Progress excellent and our industry sets an example to other much older fruit industries.

*Vegetative propagation:* Through sound research South Africa is probably a world leader in some aspects of vegetative propagation.

*Determination of ripeness:* (Including oil, moisture, etc.). Some workers made rather unique scientific contributions in this field. The firmometer, developed at the CSFRI may prove to be a break-through.

*Phytophthora and associated problems:* Prof Zentmyer described this work as the most advanced in the world. We have reason to feel proud of achievements in South Africa, but we have a long and difficult road ahead. We need international co-operation on these projects.

*Fertilization:* Mr Langenegger and his co-workers achieved much by showing that most growers used to over fertilize. Liming assumed new significance as Calcium seems to effect the root rot situation.

*Orchard practices:* Due to observations and research, many orchard practices are changing rapidly, but changes seem to come as a result of trial and error and by evolution.

*Sooty Blotch:* The cause and control completed.

Don Gustafson in his report said: "More avocado research is being conducted in South Africa at the present time, than in most avocado producing countries."

Gustafson also reports "The avocado industry leaders are to be commended for beginning SAAGA, and making it work. Growers organizations are important to guide the industry. Governmental agencies, research stations and such organizations are established to assist growers solve industry problems. However, it is the responsibility of the growers to identify industry problems and find ways to solve them. This is the value of a group such as SAAGA. Everything should be done to encourage all growers to join and to participate in the development of their organization and further their industry".

At the moment there is a need for a Technical Service and an Extension Service in SAAGA. Both are by-products of research, but both form essential links between the research worker and the grower. There is a wide gap between the research worker and the farmer and this can lead to considerable misunderstanding and even antagonism. A Technical Service is necessary to investigate matters such as export standards and suggest better regulations. It also acts as a policy machine to assist the Management Committee.

The communication gap between the research worker and the producer is bridged by

the extension man. In all the developed countries, it has been proved repeatedly that the research worker cannot fulfill the function of extension. Wherever it was tried, the research worker became an extension man and research stopped.

Through evolution, SAAGA has moved on over the years. The organization started with co-ordination of marketing in 1967, but became involved in research in 1974. In 1977 SAAGA appointed an administration officer and a research co-ordinator and they have appointed the first extension man recently. What will the next step be? The answers lie in the correct identification of the problems of the industry and — believe it or not — the profitability of avocado production over the next 4 years.

It is my duty to tell you that Mr FJ Lourens, your chairman for the past few years played a dominant role in shaping the Technical Subcommittee and our research activities. The sound work and imaginative changes introduced by Mr Lourens, will represent milestones of progress. Without the Technical Sub-committee and in particular *ad hoc* committee, my task would have been impossible. My sincerest thanks to Jan Toerien, Arthur Rowell and Ronnie Lunt.