

## **Opportunities for Future South African –European Union Food Science Collaboration**

Opportunities between countries or as in this statement, continents, are sometimes difficult to summarise. Their priorities or important focus areas for research can be “worlds apart” and again in another context the same “global” trends apply.

When talking about South Africa it is also maybe more correct to think in terms of Southern Africa or then Africa for that matter, since the collaboration is most likely to consist of consortiums of countries between Europe and Africa. In speaking about Food Science in the broader sense of Biosciences to include agriculture as well as health-nutrition areas, the following aspects can be mentioned:

Drivers for research focus are of course influenced by the consumers. Europe, specifically the older EU countries, has more older consumers while South Africa and the rest of Africa have more younger populations. Aspirations and food choices of these age groups very much dictate to the food industry what products are popular and preferred. The health drive will continue to dominate on all levels. In Europe the consumers are prepared to pay for “quality of life” in their food products, therefore nutraceuticals, functional foods, micronutrients and immuno-nutritional products will stay in demand. In South Africa the more mixed socio economical status of the country allows for consumers with this exact same demands and aspirations as their European counterparts living and shopping in the same city with people that are not able to obtain the minimum energy intake levels, having protein deficiencies, Vitamin A and iron deficiencies ect. The newer eastern European countries bring different problems and opportunities for the EU. These newer countries have more similarities with African countries in terms of poverty, nutritional challenges and agriculture among other things. Hopefully this will improve the African-EU collaboration, since research problems that were previously motivated as an African situation that needs to be funded, now might have an implementation opportunity in the EU. Africa can also benefit from collaboration with these eastern EU countries, as many of their indigenous knowledge might be fast tracking problem solving we have been battling with in similar scenarios.

Other health issues such as the epidemic proportions HIV and AIDS have reached in many African countries will force food science more and more to assist in these areas regarding supplementation and health balancing as well as possible drug carriers in the future to come. Europe could support this type of research because of the major impact such projects can achieve for millions of people.

Africa has great biodiversity to offer. Europe wants to explore this type of novelties. Thinking about the indigenous fruits, vegetables, cereals and proteins/fish - the interest is not only for new or novel processed types of raw materials to create different flavours, textures and mouth feel in food products

but also the enormous potential of interesting active components that can be found. Possible new natural preservatives, better functionality, natural antioxidants, and many other phytochemicals can be discovered. The great benefit is not just to satisfy the European's push for their food to be more natural and "free from" any artificial components; the great opportunity is for South African and other African countries to discover and developed the research skills here so that the discovery and value addition can be done locally.

The agricultural based research in Europe is changing, one reason being the climatic changes that are globally taking place. It becomes necessary to continue field testing and experimenting under different conditions – South Africa and other African communities can offer previous experiences with crop performances under stressful conditions. Competition from countries such as Asia is also forcing the agricultural research to change from bulk agriculture to more specialised agriculture and more competitive niche crops. Africa has organic soil and space to test and develop competitive niche crops required by European markets. Consumers demanding more organic products create a continued EU-Africa relationship, since the virgin soils for this type of agriculture are available for development and growth in Africa.

The quality drive will force the two continents to stay in touch. When European food companies demand and specify a specific quality of raw material/product they must very much understand and interact with suppliers to achieve this. South African food scientists understand the local constraints and offer innovative solutions to these demands from the local industry side. Food scientists here have the advantage of having the academic background to understand the requirements made, but also have many experiences in adapting to local conditions, equipment constraints, time delays (longer shelf life requirements), temperature challenges (cold chain – not working as in Europe). Another example is the interest in indigenous fermented products; this opens all kinds of research opportunities for South African Food Scientists that are familiar with local microbial strains and are then able to manipulate and do adaptations to guarantee safety, stability and shelf life of a product. Local food scientists can offer this experience when working in research projects or when collaborating between food companies, since it is crucial to create trust and surety about quality and safety when offering food products to consumers in Europe that was produced and/or processed in Africa.

Environmental issues will keep the focus on aspects such as biodegradable packaging/films (an inseparable part of the food industry) and waste or by-products beneficiation. Adding value and finding other benefits for by-products which can contain significant amounts of valuable components is of common interest and has many opportunities to offer for South African and EU countries to do collaborative research.

Opportunities for collaboration lie on different levels: Food manufacturing industries will follow the demands depending on the target market for export (SA to Europe or Europe to SA); this will include current trends such as for

convenience food, ready-to-eat, healthy, good taste, fusion flavours, ect. ect. Larger type of research projects or “global” research will address wider considerations and in a sense more fundamental scientific issues, but with a stronger and stronger dissemination of knowledge plan in the future. The opportunity is also there for the SA researcher when working in EU Projects to link the dissemination of knowledge activities with current government priorities and drive much more for job creation and new business creation opportunities. In addition there should be a stronger focus locally to have follow-up/ implementation/ exploitation of developed research, specifically EU-Africa research projects. Collaborative research (formally) between SA and the EU is a somewhat recent activity – previous experience showed that although the objectives of for example a three year project are achieved, more local follow through should be done. For our own benefit we should exploit and follow up more carefully on patent, implantation, scale-up or even just further dissemination of knowledge, since the awareness to the South African entrepreneurs and businesses is our responsibility, not the EU’s.

The continued changes in labour and legislation practices allow for new research opportunities in the food industry. Retailers and consumers are powerful players, specifically in Europe. They demand a right to information – from proper labelling right through to the labour practices in foreign countries. This implies newer analytical techniques researchers must develop to supply the chemical/microbiological information demanded by legislation. Changes in farming practices can imply using more manual labour (for example hand picking of baby vegetables to achieve almost zero defect quality standards) or more industrialised processes, again to achieve certain quality/safety standards. These changes always have to be verified and checked for safety and acceptability, the two pillars of food research.

The fast moving information technology world also changes the face of opportunities in Food Science. The backbone of being able to do traceability (also tracing of any Genetically Modified products) is electronic record keeping, databases, electronic tags and information access via internet and electronic communications. The communication effectiveness between two scientists in Europe and Africa are becoming as good as two colleagues in the same building. The ease of electronic communication will speed up and stimulate more openness in information exchange and definitely stimulate research collaboration as more and more researchers experience this type of working relationship with “colleagues” in other countries.

Future collaboration that could have a great impact on the food industry is the concept where a research consortium for a specific project (African and EU partners) each identify two small industry companies or SME’s in their country to join in annual meetings where the research are discussed. They then form an industry platform committee to help shape the focus and practicality/implementation of the research. Presentations will be prepared by the researchers for this group to keep the results understandable and relevant. This is scheduled as a separate discussion, where after the scientists can still continue with other feedback and scientific discussions. Expenses are also budgeted for the industry platform members to travel to

these annual events which is planned to be in Africa to keep cost down and to insure maximum participation. This concept was included in a proposal and the approval of the research project is anxiously awaited!

Indeed exiting times to be living in!!

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