

## SASTA PRESIDENT'S ADDRESS

**Tim Murray**

Ladies and Gentlemen, last year at this occasion I spoke on the need to improve communications so as to make industry data more easily available, and in so doing improve our productivity.

Shaun referred to the commoditisation of information that is taking place on the worldwide web. Nothing much of this sort has happened in this industry since last year, with the exception that SASA will soon be putting information such as the latest industry estimate and the crop estimate on the worldwide web, available for everybody. And, secondly, if you are very nice to Jane Ferguson at SA Cane Growers and put your name on her mailing list, you can get the latest RV price sent to you by SMS onto your cell phone. What has surprised me is the extent to which, by getting this one simple piece of information, growers feel informed. Somebody is telling them something instead of them having to ask for it, and it is a simple exercise and shows how easily information can be transferred.

For the past few years we have spoken about the need to improve productivity by at least that 3% that James Fry from LMC quoted a number of years ago. I have been interested to see to what extent the - let us call them political agreements – the Sugar Industry Agreement as it has been modified over the years, has impacted on industry productivity over the past 75 years, because, after all, we are sitting now on the 75th Anniversary of the existence of this Technologists' Association. In doing a review over that period of time, one has to be careful not to look at the performance of structures within the industry, such as the Experiment Station and the Sugar Milling Research Institute, and claim those as being SASTA's activities. SASTA is actually a group of people interacting and sharing ideas.

In preparation for this presentation I attempted to look at the environment that technologists have found themselves in over the past. So I am going to briefly look at that, and then I will add some thoughts of my own on how the industry has addressed issues of research and, in fact, competition.

If we look at some of the statistics, overall industry performance statistics, I find a very disappointing picture. I was hoping to be able to make some statistical analyses and track trends of the coming and going of various activities; for example, cane payment systems. Cane payment systems have varied from being paid a single what was then sucrose price, based on both the revenues earned on export market and the revenues earned on the local market. That system then changed a few years ago and went to a pool system where growers, in particular, were exposed to the revenues earned on the domestic markets separately from the revenues earned on the export market. And when you look back at the industry data, there are no shadows of that at all in productivity terms. Economic influences – yes, for sure. The pool system definitely had the effect of reducing area under cane as growers were exposed to the margins of the export proceeds, and they therefore reduced the amount of cane grown in the more marginal areas. But there is no sign of it in the industry stats. When I talk about industry stats I am talking about productivity stats, as far as I can see them. I do not want to be dogmatic about it, but what is actually required is a more in-depth analysis than I was able to do in preparation for today. If you look, for example, at sucrose % cane, going back from 1936 to date, there are some significant changes in the tons cane per hectare, and I will refer to those presently. Cane to sugar ratio, insignificant changes from 1936 to date. Some of the milling statistics, such as boiling house recoveries, are virtually unchanged. The marginal value of that last ton of production did not affect industry stats as I expected to it have done, when I was looking into reviewing the effect of the regimes that technologists - you and I - have been involved in. Well, that

sojourn that we had with the pool system had differential effects on millers and growers. Growers were exposed to that marginal production, whereas millers had always been exposed to average production. So maybe it is not surprising that those differences were not visible in the statistics that are available from the industry. As I said, there was an effect on the area under cane, and a consequent effect, as area under cane reduced, on the throughput of the mills, and I am sure a consequent effect on the sentiment of the milling companies exposed to that situation. Where the growers were reducing area under cane, and throughput of the mills was shrinking, there must have been a negative sentiment to expenditure in those mills under shrinking throughput of cane, but no improvement in efficiency. There were changes in milling technology, there were changes in moving from milling trains to diffusers, and Brian Purchase at SMRI will tell you of the whole pile of changes that took place in the milling environment, the whole pile of changes that have taken place in the agricultural environment. But what has not happened is an improvement in the cane to sugar ratio.

I did some stats, and they were pretty rudimentary, with some data that I got from SA Cane Growers and from Rex Hudson, who deals with this particular issue as a hobby, and I took data from three time periods. One period was from 1936 to 1941, then from 1975 to 1980 and from 1996 to 2000. There is no science in choosing those numbers; it was where the data fell and where I had representative information available. If we take tons cane per hectare in the average of the period 1936 to 1941, this was 28 tons cane per hectare per area under cane, not hectare harvested. In 1975 to 1980 that had risen to 48, an increase of half a ton per hectare per annum, an improvement during that 39 year period. In the 1996 to 2000 period this rose a further 0.2 tons per annum to 53 tons per hectare. So significant improvements in the cane yield occurred over that period of time. Sucrose per cent cane in the period 1936 to 1941 was 13.5; and in the next review period that I did it was 12.7; and the next review period it was 13.0. No change. Obviously the tons sucrose per hectare had a similar change to the yield, because the product of those two is less than 4.0 in 1936; up to 6.1 in 1975 to 1980, and 6.9 in 1996 to 2000. So there have been agricultural improvements, which are fairly significant. Surprising, sucrose per cent cane, virtually no change. Over the same period of time I looked at the cane to sugar ratio: 8.7 in 1936 to 1941; 9.6 in 1975 to 1980; 8.8 in 1996 to 2000. The conclusion one comes to from all of this is that the other effects, those of change, weather conditions and agronomic environment, far overshadow any sort of effect that I might have been looking for in the effective industrial payments systems or industrial regimes. I was unable to find any political dispensation relationship between these data. And yes, I said the economic ones, the pool system changed the marginal areas, the removal of the transport subsidy system by the Rörich Commission of Enquiry improved transport costs dramatically, they removed a substantial amount, in the region of a hundred million Rand came out of growers' costs - lets call it industry costs - when they took over the cane transport system. I suppose now, with the current range of deregulation, a similar economy is going to be achieved as the transport of sugar moves from a shared cost to an individual sector cost where the miller is going to take it over. So my sojourn into the stats actually showed little; which leaves me to wonder, "What will the effect of the technologists be?" Of the current round of increasing competition that is taking place in the industry, what sort of regime are this Association's members going to find themselves under, because of the increasing competition that the industry is trying to create to improve efficiencies in our environment? Why did the past variation and economic environment not leave any shadow on industry efficiency stats? Is there perhaps a delay, which in my statistical analysis I did not pick up, like the rainfall five-year moving average? I suppose if some people who are sharper at stats than I am, actually put their minds to it, they might find some correlations. In the case of agricultural research, this is essentially all being conducted by technologists at the Experiment Station, and none, or virtually none, by milling companies or growers. SASEX has always been steadfast in the assessment of their various variety trials, and they have made that assessment on the basis of ERC. Notwithstanding the payment structure, which has been agreed to by millers and growers, whether it is on sucrose and now on RV, SASEX has always evaluated their variety trials, their choice of treatments, on an ERC basis,

which estimates how much sugar could have been made from that cane. And so there has been no change in the way they have behaved in recent times. Also until recently, the past ten years or so, SASEX has been blissfully unaware of the economics of cane growing, and have not been involved directly with that relationship at all. That is a change that has taken place, and growers now are much more closely associated with the Experiment Station, as indeed are the agricultural economists that are available to the industry.

But what has been the case in the milling sector? Unlike the agricultural sector, the milling companies have in the past had very substantial private research infrastructures. Both the two major milling companies have been technological leaders in their time in the milling environment. And they have had private research facilities as distinct from the socialised cost of research through the Sugar Milling Research Institute. Now why - during the period of the cost based division of proceeds, whereby we divided proceeds on the basis of the costs established, or costs incurred, in the two sectors, growing and milling. One would have expected that during that time, where given the structure companies who have high proportions of total industry, where an individual could influence the cost base, as opposed to an individual grower being unable to influence the cost base, therefore not being able to say, "I am going to spend more money. I am going to pick up that increase in cost through the division of proceeds," because we used to have that cost based within the proceeds. Why during that period did we not see significant improvements in milling efficiency? Because, after all, the money spent would be regained through the division of proceeds system. I have already told you what figures as an example have occurred in the boiling house recoveries, very little. I have said that there were a lot of economies made in milling technology, and we have made reference to some of them in the change to diffusers, and these have resulted in financial economies taking place. There have been vast improvements in the cost of production, but not necessarily in efficiency or productivity of the use of the sugarcane. It is very disturbing, given the reality of Dr Bernard Ravnö's paper at SASTA last year, where he looked at the financial consequences of using a new technology (membrane filtration I think was used as an example at that stage), which required a high investment per milling company to achieve a productivity improvement, and the outcome of that was that any improvement in the cost of production in a milling environment goes straight to the miller, whereas any improvement in productivity has to be shared with the growers in the division of proceeds ratio, something like 60/40. So an improvement in productivity is shared, and an improvement in the cost structure is retained, and that was really the gist of Dr Ravnö's paper. This is an antipathetic scenario to the suggestion that we might be requiring and needing productivity improvements. The greatest incentive for millers is indeed to extend the season length, the greatest incentive for millers is indeed to increase their throughput, and the incentive to improve productivity when the gains are going to be shared with the growers are not very strong. This leads one to believe that, if we are really wanting to go forward into the future in this industry, we need to find a mechanism whereby the type of reward that comes from a productivity improvement can be shared equitably. As I have said, the incentive is to reduce costs in the agricultural sector. In juxtaposition to this, the research function has largely been invested in the Experiment Station, where the costs are socialised amongst all growers and amongst all millers as well. The millers and growers share that cost in the division of proceeds ratio. The effect has been that yield productivity has increased dramatically over the years, from 28 tons per hectare under cane way back in 1936 to 53 tons now. Those are significant yields and if you do a linear regression you will find it is in the region of about half a ton per hectare increase in yield per annum. That represents about 1% of the 3% that James Fry says we need in productivity improvement that has taken place over time. This has been brought about by a number of different issues, from the plant breeding and selection programme, through plant pathological activities, agronomic advice, extension, efforts employed by the Experiment Station, the fertiliser advisory service, and issues like that.

But during this period of time there has been no, or little, improvement. In fact, the stats that I quote show no improvement in sucrose per cent cane. I am of the opinion that if one was to take the improvements that each variety, for example, has yielded over and above the previous variety, each action that has been postulated by the Experiment Station over and above the previous procedures, and one compounded that, it would come to a much higher productivity improvement than the 0,5 tons of cane per hectare per annum. And this probably also shows the environment in which agriculture is working, whereby we are losing - and this is my view - productivity substantially to issues like monoculture, and micronutrient degradation. And the improvements that have taken place have masked that effect. So, although we continue to get an improvement, that improvement is very much slower than it could have been. Looking at agricultural research, I am of the view that research in agriculture is structurally more sound than it is in the milling sector.

The various milling companies are reducing their own R&D activities, as they have come under the cost squeeze that is taking place. The Sugar Milling Research Institute has indeed been asked to cover a greater proportion of their costs by doing contract research. Who is spending more money to do the basic, high risk research? I am sure a number of you have received the May edition of the International Sugar Journal produced in Louisiana in the United States, and may well have read the article I am going to make reference to. In the article there is a reference to an interaction that Henry Ford had. When he hired an efficiency expert to go through his plant. Mr Ford directed him to find the non-productive employees, and he said, "I will fire them." The expert reported that he had seen one employee that concerned him. "Every time I walked by, this man he had his feet on his desk and was doing nothing," he said, "You should consider getting rid of him." Well, Ford was curious about that, but once identified and he knew who it was, Ford shook his head and said, "No, I can't fire him. I pay him to do nothing but think, and that is what he is doing." This was way back then, and even in this culture of downsizing and streamlining, no company can afford to lose its thinkers. I believe the real results come from basic research, and one needs to be able to invest in thinking capacity. SASEX has contracted out some of their basic research, that high risk and expensive research that used to be done in-house. This work, among other things, on the carbon path and carbon partitioning, which is the process surrounding sucrose accumulation, has been the bugbear of agricultural research for years. Coming to an understanding of how the plant makes sucrose - this is the work that has been contracted out. In contracting it out to the Institute of Plant Biotechnology at the University of Stellenbosch, there have been some startling and dramatic results. I believe these results are really what sugar industries worldwide have been waiting for, and there are going to be papers presented at this Congress that refer to the PFP gene promoter that in glasshouse trials has raised sucrose per cent cane from 14 as a control to 23 - a 64% improvement. This is what can arise out of research, and fortunately we have been able to capture it through Intellectual Property rights that have been secured. There has also been work on a model that describes the sucrose accumulation process. Hitherto this has been a totally misunderstood process, and now the key has been found for this particular activity. Had this not been a collaborative project, had this not been a socialised cost, I do not believe any one company, or any group of growers would have embarked upon it, and the type of benefits would not have risen, and the risks probably would never have been taken. The point I am trying to make is that I believe in collaboration and partnerships. All growers are in competition with one another, and all millers are in competition with one another. I do not think that should prevent collaboration in order to raise the productivity of us all.

I wish now to speak on the issue of competition. In my view I see that we, the South African sugar industry, have a very immature attitude to competition. Neither millers nor growers actually know how to function in a competitive environment. No individual grower can influence any competitive environment he finds himself in. Milling companies can, given their share of the industry and scale of operations. I am addressing the issue of production capacity and production efficiency; I am not trying to deal with the issue of competition in the marketplace, which is just as complex and just as

daunting. I sense a tendency to withdraw into a private 'laager', if we can call it that, to capture the value of any improvements that are generated. I think that is a natural tendency, but I do not think it is a healthy tendency. Let us look at the example of the PC. If you look way back then, when the PC first became popular, there were a number of processors in use at that stage that were significantly superior to the IBM processor that was finally chosen. If you take the Hewlett Packard, or the Apple, or the Commodore processors from way back then, they were significantly more powerful. Why did they never grow? Because the owners of that technology enshrouded it in secrecy. They said, "Here it is inside this box; you press the keys and see what happens." The owners of IBM processor did not say that. They said, "Here, here is the manual, this is how this thing works. Go and see what applications you can find." And they protected their rights to it. What has happened? They have absolutely blossomed! What we need to do is find opportunities to be able to share our technology in a controlled and regulated way. If I have an invention that gives me a competitive edge over my customer, obviously my first reaction is to use that competitive edge. Take, for example, the development of ABS brakes by BMW. They could have trapped all of that technology for themselves at a value of, say, R10.00 per vehicle, but that would have encouraged opposition from, say, Merc, to develop a similar system. The alternative of licencing the technology to Merc for a fee of R6.00 so that Merc can only enjoy R4.00 while BMW continues to enjoy R6.00 per Merc sold, makes more sense and discourages Merc from developing a competitive system. We need to get to the stage where we are actually able to share technology and protect our rights while doing so - not to give it away. To share in such a way that we ourselves are able to benefit, and as an industry we have a win/win situation. I want to encourage our technologists to try and learn to collaborate in an environment of competition. I believe that if we do not learn to do so, we will be doomed to failure. No major developments take place in a 'laager' mentality. We need to invest in finding the key, such as the one found to explain sucrose accumulation. We need to invest jointly in finding productivity improvements. We need to collaborate, and we need to secure our intellectual properties.

The last issue I want to address is another challenge that I believe technologists are not taking up properly in this country. This is the technologies associated with small scale cane growing. I think there is a tendency amongst scientists, particularly agricultural scientist, to say that all research is equally applicable, that all varieties could work for small scale growers - they work for large scale growers - so there is no need for any new work to be done to sort out those issues. And that is true. Conversely, some of the research work done, on the application of intercropping, for example, is applicable to small scale growers and is equally applicable to large scale growers. But I want to challenge technologists to clear their minds and consider those issues that are scale of operations sensitive, because there are issues that are scale of operations sensitive. Thozama Doni, who heads up the Umthombo Agricultural Finance Division of SASA, told us that 70% of his clients farm on less than two hectares of land. There are crucial agricultural activities that take place, for example weed control and application of chemicals - be they chemical fertilizers, ripeners or nematicides - that cannot be efficiently downsized to a two hectare plot size. Time of harvest and cane transport are probably the most expensive issues facing small scale farmers today. These issues do not traditionally fall within scientific disciplines, that is, the small scale context. I believe technologists, and the assembled group is here today, need to channel their efforts into finding solutions to issues such as those. After all, I think those costs I made reference to, the chemicals, transport and harvesting, represent 30-40% of a small scale grower's costs. Small scale growers represent about 20% of production in this industry, and that sum represents about 7% of the costs in the industry. It is an activity that more than justifies a significant input.

In conclusion, Ladies and Gentlemen, I must say that over the past 75 years this industry's technologists have solved many, many problems. And there is a wonderful legacy of recorded proceedings. Go back and look at the proceedings that arise out of this Association of technologists. Look at some of the CDs that will be coming out, with an index of past papers and authors'

activities. SASTA's mission continues to be to facilitate the sharing of advances in technology amongst a wide audience of both practical people and decision makers, and in this way contribute to the competitiveness of the local industry as an international player in the world of sugar.

Ladies and Gentlemen, thank you and I wish the technologists to go forward into a new era where we can actually learn to operate in the globalised environment that Shaun has referred to, and learn to live in the competitive environment that we find ourselves in.