

The SPAWN RUN

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July 2016

FROM THE EDITOR

It's been a little more than a month since all the excitement of ISMS 2016 and the Dutch Mushroom Days and I am sure that by now many of us have settled back into our usual routine and are trying to implement the ideas and knowledge brought back from the Netherlands. Conferences, exhibitions and excursions are good motivators and allow one to briefly step out of your proverbial box which promotes growth and expansive thinking.

Having said that, this kind of exposure also helps to reinforce what we know and maintain the basic concepts that keep the mushroom industry turning.

These principles will become of higher importance as the local industry is exposed to more and more challenges from availability of raw materials to a slowing economy.

In the words of Mark Zuckerberg ... "I think a simple rule of business is, if you do the things that are easier first, then you can actually make a lot of progress."

Nathan Jones

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On top of course



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The SPAWN RUN

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SAMFA Chairman's Report

1 December 2014 – 30 November 2015

by Ross Richardson, Chairman

This report therefore covers SAMFA's last financial year, being from 1 December 2014 to 30 November 2015. The previous financial year was reported at the last AGM held at Kleine Zalze Lodge and Conference Centre, 27 & 28 May 2014.

1. PR Initiative

Most of the income generated from the spawn levies is invested in PR through Riana Greenblo Communications (RGCOMM). Over the years the committee has found that the generic nature of our product suits the Public Relations vehicle. This allows us to leverage up our marketing spend to obtain a greater than 1:3 return on investment (ROI). RGCMM has posted a ROI of R1: R3.70 this year. If the non-generic media spend is removed from the budget, which is the spend on social media, then the ROI increases to R1:R5.20.

Based on the global trend towards using social media to reach younger age groups, it was decided to "keep up" and invest heavily in this area. Over the past couple of years an understanding of how social media works, as well as the drivers for interaction has been developed. Using this information the PR strategy has been further aligned and fine-tuned to make the most of what we can with a limited budget.

High quality visuals and recipes are key drivers for "click" action and so all posts contain these elements. Looking around the world at other mushroom industries and their social media sites, we can be pleased that we rank up with the best of them in terms of quality and content.

At present 28% of the budget has been spent in this area. The ROI on this spend is undefined as there is no measurement standard in place. In the forthcoming year the effectiveness of this spend will be an area to examine.

The **pink punnet campaign** where the industry raised money in conjunction with Pick n Pay during the first 4 weeks of October to highlight the cancer fighting properties of mushrooms, was again, a success this year raising R400 000-00.

The event was attended by media representing many publications and a large amount of coverage was generated. Dr Carol-Ann Bem a leading breast cancer oncologist provided journalists with an opportunity to present questions about breast cancer, the treatment and prevention of the disease.

The service delivered by Riana and her team is of an exceptional level. All events are always professionally arranged and I believe that we get the desired results being most importantly, wonderful coverage.

2. Industry Statistics

We have been recording key industry statistics for over 15 years.

This gives us a snapshot of how the industry is faring based on the changing economic environments.

The following key information is available for 2014 vs. 2015:

- Production has broken the 20 000 tons mark, for the first time. Production increased by 0.2% year on year.
- Kilogram Sales of Fresh mushrooms increased by 2.1% year on year, down from the previous year gain of 7.4%
- Rand Sales of Fresh Mushrooms increased by 8% down from 11.2% from the prior year.
- Pricing has also increased at a better rate than the prior year, being 5.8%, where 2013-2014 was at 3.5%.

This indicates that pricing has firmed, resulting in less growth in kg's than the prior year.

3. The Spawn Run

Nathan Jones is our resident Editor of The Spawn Run and is assisted by Dr Martmari van Greuning. The publication documents the issues in the industry, current research and marketing initiatives taken on by SAMFA.

The Spawn Run still is enjoying a profitable position thanks to the support of the advertisers and the free time being given by the Editor. The Spawn Run generated approximately R49 000 last year. This income contributes to the basic running costs of the organisation.

The Spawn Run continues to contain high quality articles and has a broad readership from supervisors on our farms to farmers and academics in Australia, Europe and the USA. I believe that this publication continues to be a credible publication covering some of the technical issues that face the industry as well as updates on our various projects being run. A portion of the articles are being reprinted in some of the international mushroom magazines.

4. Research and the University of Pretoria

The University of Pretoria continues with its research. Having moved the focus from the casing project to disease diagnostics the following milestones were achieved last year:

- Health checks were completed on various mushroom farms.
- Methodologies of the health checks are being further optimised.
- Masters student and Doctoral student writing up their work for submission.
- Maintenance of the 1st of the World International Mushroom Pathogen Collections continues.
- Submissions were made to present 3 papers at ISMS2016

5. Conference at Avianto Conference Venue

The 2014 – 2015 conference was held at the Avianto Conference Venue in Muldersdrift, Johannesburg on the 17th March 2016.

The single day event had 45 delegates attending with good support from sponsors and suppliers to the mushroom industry.

As it was a one day conference no farm walks were arranged. The programme featured:

- Leslie Codd from Codd Mushrooms in Ireland describing how he expanded his business over the past 26 years to be the largest supplier to the Irish mushroom industry. Leslie conducted a second presentation on how he markets and brands mushrooms in Ireland.
- Matthew Drew spoke on composting experiences working with Monaghan Mushrooms in Ireland.
- Neil van Rij presented the opportunities for truffle farming.
- Riana Greenblo updated the delegates on the PR initiatives progress.
- The University of Pretoria gave two presentations on the research work as well as the disease diagnostics programme.
- Lastly Ettienne le Roux from Rand Merchant Bank offered us some insights into the economic road ahead.

The conference raised approximately R73 000 which will be used for the running costs of SAMFA.

No conference is planned for 2015 – 2016 due to the ISMS 2016 conference held in Amsterdam.

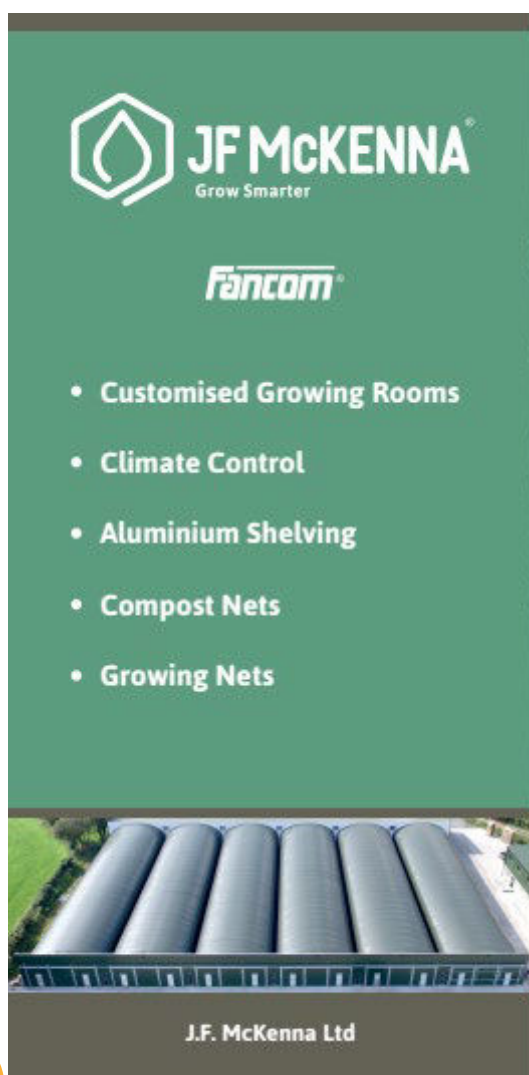
6. Administration

This is the 2nd year of the R3.54 Spawn levy which will allow for a greater marketing reach. No increases are anticipated for the 2015 – 2016 financial year.

SAMFA's financial administration affairs have been conducted by Michelle Rossouw. The Committee thanks her for a necessary job that often goes unnoticed.

7. Conclusion

Lastly, I would like to thank the committee members for their work and have no doubt the members appreciate the effort made. We need to keep the focus on the core aspects of SAMFA, being marketing and research in order to ensure the industry progresses into the future on a solid foundation.



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FROM TULIPS TO FOUR-LEAF CLOVERS

by Mel Meyer, Dig It Horticultural Services

We decided to go to Holland a bit earlier so as to possibly squeeze in a visit to Amsterdam, so a Sunday night flight was booked with the notion of landing at Schiphol on the Monday at about lunchtime, grab a car, dash down the road and be in the heart of Amsterdam at 13h00. Think again! This was not to be. Even with on-board GPS we seemed to take the wrong highway. Oh well, all part of the excitement I suppose. I was travelling with Danny from Nation Mushrooms, and he knew everything about a GPS. He promptly inserted a function which showed us areas for parking. Now they say that there is a first time for everything. One of these first times I was soon to experience. The Capetonians were on a clear mission. We knew where we wanted to go, but simply didn't know how to get there. "Mel, just follow one of those blue parking flags, I'm driving on the blimen wrong side of the road and cannot look at the GPS and drive", came the call from Danny, by now somewhat louder than an hour ago. Needless to say the parking flag that I had chosen took us right into the heart of the city and directly to a closed door. That's when the fight started. "This is not a parking area!" by now the shout was many octaves higher. "Well that's what the GPS said and that's what you told me to follow" I replied in an equally abrasive tone. Suddenly we both went totally quiet as the roller door began to open. It was as if we were both about to be swallowed by some large whale.



A cheesy story



"No GPS Danny!!"

We drove through the door and straight into a lift. This was a 'first' for me and most fascinating. We exited the lift on the 5th floor and had the most wonderful view of the city. Let the city tour begin. I had been to Amsterdam a few times before, but this was Danny's first visit and I don't think he was simply looking for tulips at the flower market. In true horticultural fashion, I actually did manage to find some. I can highly recommend that anyone travelling through Holland take a day or three to visit the sights and sounds (ok coffee shops too if you're that way inclined) of bustling Amsterdam. Just be careful of the gazillion bicycles and passing trams. You will come off second best.

Once we had walked ourselves sillier than on a mushroom farm, we head-

ed toward 's-Hertogenbosch to find our accommodation. Once again the dreaded GPS would be tested to its full potential. In true summer fashion, we were greeted with plenty rain. And now I know clearly where the winter saying in Cape Town comes from, "Die Kaap is nou Hollands". After checking in to our, almost Rand-friendly, accommodation it was agreed that there was little time to waste as Den Bosch was waiting for us mushroom folk. GPS all set up, off we went. Not only did the rain dampen our spirits, but so too did the fact that it was a Monday night and 99% of everything was closed. Back to the hotel. We soon cracked open a bottle of Olaf Bergh and in no time the rain stopped and the spirits were somewhat lifted back to an acceptable level - besides our brandy was being poured in Rands and not Euros. Our poor currency was certainly in no shape to lift our spirits on its own.



The Mushroom Museum near Horst

Tuesday dawned after a comfortable sleep with renewed energy to get back on the road in a southerly direction. The plan was to find the 'new' mushroom museum (designed by an architect with a great sense of humour, see picture) and hook up with the farm tour to Hooymans compost. Who should be one of the first ones I meet? None other than Will Litjens from Australia. Will was my



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Technical manager at the Denny Phesantekraal farm during the 90's. He now heads up operations and customer support at Elf Mushroom Supplies which is part of Rob Tolson's family farms near Sydney, Australia. I began my mushroom career under the watchful skydiving eye of Will in 1995. Not only passionate on mushrooms back then, but also crazy enough to teach me how to jump out of an aeroplane at nearly 4000ft.



The Pre-composting hall at Hooymans Compost

There were many other familiar faces getting off the bus. Morris Gilbert, Bertus van Heerden and Nichol Muller from Country mushrooms were also amongst the crowd of many other international guests. Once Will had cleared it with Roeland (from the Christiaens Group) that it was OK to tag along, it was once again on the road to the Hooymans composting facility to observe all the happenings of a massive compost yard. Of interest in particular was the new overhead gantry hoist which was nearly ready for installation.

A fine piece of machinery indeed and huge, to say the least. The pre-composting bunkers were as spectacular.



One of the many Phase 3 compost trucks

Another point of interest was the air scrubbing system which converts the ammonia off the yard into ammonium sulphate. Groups were then broken up to climb the steps up to the air handling systems of the tunnels. Ross Richardson, Nathan Jones and John Heritage were also there in true Highveld fashion.

The visit culminated with a visit to the Phase 3 emptying hall. From here we went to look at the display of the bulk and bag containers filled with phase 3 compost ready for export. These are refrigerated containers that supply phase 3 compost to facilities in countries where mushroom compost cannot be made due to the absence of raw materials.



Hooymans Phase 3 compost ready for export

That evening we were heading off to the celebrations of Champfood mushroom supplement suppliers. Jan Balthuizen and his very capable staff showed us all around his factory. I was unaware of the variety of Champfood supplement products available. Champfood

were celebrating their 25 years of existence in true style. They say a good party always has a basic recipe. Good music, great food and lots of booze. Well, Jan and his team had way more than that. He took everything up a notch and supplied approximately 700 guests with great hospitality and a fantastic party. Well done and thanks for all the effort that went into your function.



Champfood's party venue

Amongst others who attended the Dutch events flying the SA flag were the Denny guys, James Maclaren, Quinton Volschenk and Erard Erasmus. The Pretoria University representatives were Prof Lise Korsten and Werner Rossouw. All the way from the friendly city (I said 'friendly' not windy) was Chris Lovemore from East Cape Mushrooms, Port Elizabeth. Dr Elna van der Linde and Dr Susan Koch were in attendance from the ARC-PPRI (Agricultural Research Council and Plant Protection Research Institute) in Pretoria. Last but by absolutely no means least, Sylvan's Dr Martmari van Greuning who flew not only the SA flag up high, but also kept Sylvan's visitors from going thirsty. In total there were 17 people that attended from SA and 4 presentations by South Africans. Quite an achievement by our own mushroom industry. Our very own SAMFA Chairman,



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Ross Richardson, also delivered a talk on Marketing and Consumer Research, "Limited Budget, Big Impact". Well done to all the SA speakers. Hats off to you all.

The Wednesday dawned with much excitement as this was the first day of the Mushroom Days Trade show in Den Bosch. 's-Hertogenbosch as it is actually named, boasts steep history with many interesting sights in the city. It is surrounded by canals which date back to war times when protection was needed around the city. Many of the streets in town are reserved for pedestrians which makes it a wonderful city simply to walk around and soak in the sights. For you art lovers, this was also the home to famous, somewhat unconventional artist, Hieronymus Bosch. Bosch was well known for his daring works which capture many a weird depiction of nudity and related topics.



St John's Cathedral in 's-Hertogenbosch

Most of the Mushroom Days guests would have stayed in or very near to this wonderful city. The venue for the Trade show was very close to town which even saw some guests walking to the display hall. Others were brave enough to borrow a bicycle. Registration was extremely efficient, well organised and managed.

Upon first entry into the show, one quickly realises that this is an extremely international event. A total of 75 stands were displaying their goods and services. It is staged over 3 full days which gives one plenty of time to chat with suppliers and manufacturers supporting the mushroom industry; oh, and obviously those 'ole' friends in the industry that one hasn't seen for years.

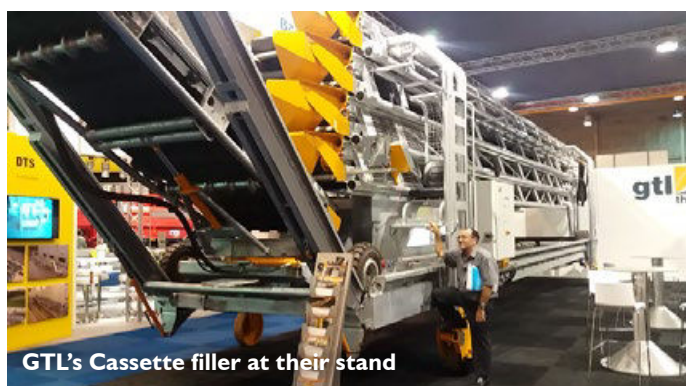


Some familiar faces at the predominantly S.A. table



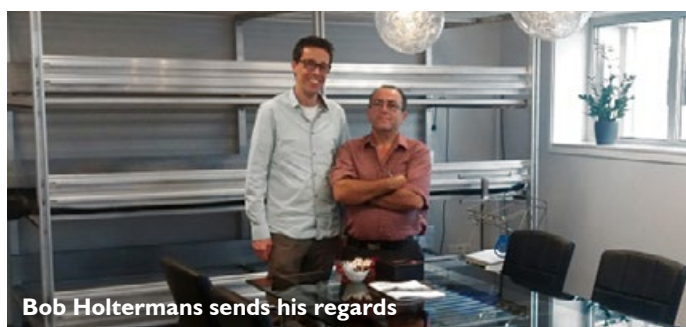
Birthday boy John with Ross, Danny, Nathan & Gé

To name specific suppliers that were present would not be fair to those I might leave out, so I think it best that I just mention that the presence of stands was immense and that I cannot think offhand



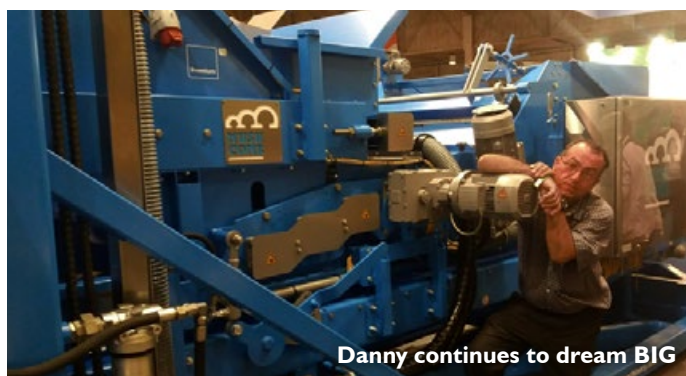
GTL's Cassette filler at their stand

of suppliers to the global industry that were not there. The overall standard of the stands was very high. Some companies even served good beer. It was not uncommon to see the odd beer being enjoyed for breakfast. The restaurant on site had all the basics to keep excessive hunger pains away. The freshly squeezed orange juice was a winner for me. Maybe it was just a way to counteract the excessive lager enjoyed the night before. A certain Champfood supplier might just have been the cause of that. Thanks Jan.



Bob Holtermans sends his regards

On the Saturday after the show it was back with our friend the GPS. We headed South to Mushcomb Equipment Supplies, where we were treated to an in depth visit of the factory and an insight into the services they supply. Bob Holtermans sends his best regards to all the South African acquaintances that he did not see at the show. Next stop was at the Sylvan spawn facility to meet up with Ger Hendriks for lunch and a few farm visits. It is always a great pleasure to spend time with the gurus in the industry who are willing to share some of their passion and knowledge. The Horst area in the south of Holland boasts numerous mushroom farms - certainly the capital of the European mushroom industry. There is also a large part of their production which involves mechanical harvesting for the canning and bottling industry.



Danny continues to dream BIG

By the end of the weekend we were ready to head off to Guinness country and flew to Dublin on the Sunday evening. It was a bank holiday weekend and the village of Swords was bustling with party goers. We had an early start on Monday and went fairly easy on the Guinness so we'd at least be able to focus on what we actually ventured over to Ireland for. No four leafed clovers or Blarney stone for us.

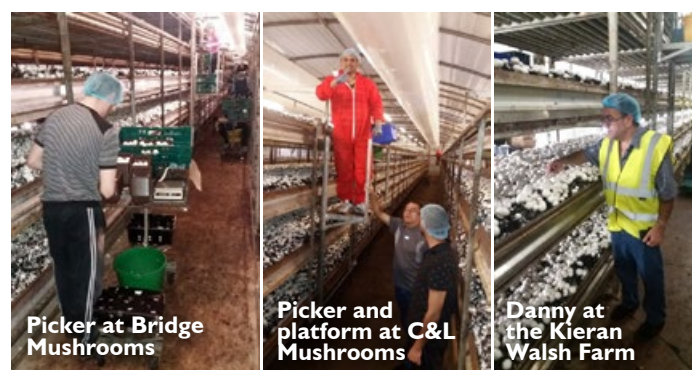
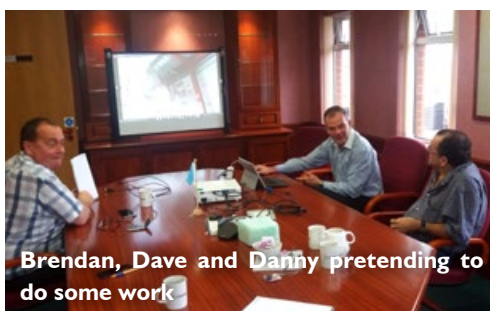
Leonne McVeigh, from the JF McKenna Group, was kind enough to give up her public holiday and drag us around the beautiful countryside in search of an Irish *Agaricus*. First stop was C&L Mushrooms, the farm of Gerard and Mary Fegan in Mayobridge, Newry. The quality and skill of the grower was soon seen in the form of the mushrooms on the beds. Absolutely superb. It was very interesting to observe the investment that had taken place on their farm in the form of energy savings.

They boasted a newish Biomass burner. The technology of burning biomass wood pellets is more environmentally friendly and reduces not only one's carbon footprint, but this form of energy, unlike coal and oil, is a renewable energy source and supports the initiative of the RHI (Renewable Heat Incentive).



Gerard and Mary are members of the Northway Grower group which also includes several Strawberry growers. Northway is a highly professional Producer Organisation which continues to expand, due primarily to adopting a collaborative approach to help achieve their goals. They market and support growers to achieve not only improved end results, but also the sharing of expertise and focus on the reduction of input costs, as well as the stabilisation of produce prices - something I believe the South African Industry could benefit from. Farm walks and training workshops are arranged by the group to support the fundamental objects of Northway Growers. These workshops include topics such as harvesting, blotch, software developments and many more.

Next stop was the farm of Sean Murphy, also in Mayobridge. The farm has an annual production of over 2 million kg from 21 growing tunnels. Only phase 3 compost is filled. Sean is actively involved with Northway. He has been very involved with reducing his power costs with the installation of solar panels and biomass boilers. The farm has recently been awarded the Arable/Horticulture Farmer of the Year award by the Danske Bank and Farming Life Awards. Sean's energy is very evident as he wets floors down and talks to us at the same time. The energy is clearly converted into results and his attention to detail was written all over the walls.



Leonne then took us to the Bank Bar and Bistro in Newry which served excellent pub grub. After some great local beer tasting, our day was now officially over and I had the privilege of meeting a sailing friend from years gone by. Will and I had spent nearly 26 000 nautical miles at sea together during the early nineties, so you can just imagine that Danny had to sit through all the 'catching up' and old sailing stories. We had dinner in Armagh, which is a city on the border area that suffered badly during the Irish bombings and protests in the 70's and 80's. Things certainly seem to be more relaxed now. Maybe it was just the 3rd Guinness that was talking.

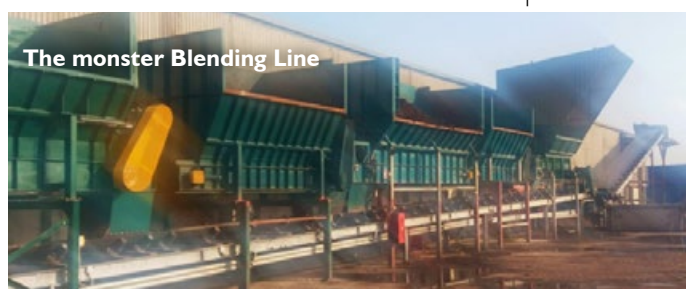
Tuesday morning we were picked up by Aidan O'Harte from Harte Peat. We first headed off to spend some time with Brendon McKenna and David Austin of JF McKenna's. Once done we were off with Aidan to the farm of Kieran Walsh (Gold Circle Mushrooms). Here the General Manager, Dessie McGuigan and Grower, JP Galignan, showed us around and explained in wonderful detail of the



growing processes on Phase 3 compost as well as all the packing constraints and numbers of a fairly 'tight' packing area. Expansion plans are on the cards, and for this we wish them the best of luck. The auto-wrappers were certainly working overtime with labels being put on so quickly they were seen simply as a blur. If memory serves me correctly, up to 400 000 packs were done on their 2 packing lines weekly. Loading was done efficiently and simply with most mushrooms going over to Britain.

After the farm we were treated by Aidan to a wonderful pub lunch. No we didn't indulge in too many Guinness and we were ready for a visit to Harte Peat. Once there, Aidan took his time in showing in detail how the operation ticks. Incoming product from various bogs gets off-loaded into a concrete walled drop off zone with a massive 'slopping' sound. Two main types are delivered to the processing plant.

One is quite drawn to the texture of the product in its raw form. It is extremely high in moisture and a very 'heavy' product. Ideal for growing solid mushrooms. From here it moves through the processing plant to be blended into the mixes they produce for the various growers around the world. pH is adjusted predominantly with sugar beet lime which comes from England. All the information is fed back to the control room where all data is captured.



The peat for the bagging plant, for filling the small bags, is blended with a fairly large portion of milled (dry) peat which assists the machinery with the through-put required. Milled peat is harvested on the surface of the bog and allowed to dry out before being collected. It is a very fine structured material that has huge water absorption potential and it is this quality that allows the heavy wet peat to become more fluid through the bagging equipment.

Aidan places huge emphasis on customer relations, and employing the correct staff to manage the process plant. Many of his staff have been with the plant since the earlier years when Aidan's dad, Tommy O'Harte, originally began the business. The business has expanded with a 'bulk' bag processing plant toward the south near Dublin. As our route was to take us back to Dublin for an early flight the following morning, we also had the opportunity to visit this new processing plant.

No more late nights were had as a 3am wake up was waiting for us the next day. We miraculously made the flight out on time and caught our connection at Schipol airport, Amsterdam. Thanks must go to Nation Mushrooms for assisting to make this trip possible and to Danny for enduring my search for that four leafed clover, and also calming my GPS ranting in search of those tulips from Amsterdam.



I would highly recommend to all you mushroom people out there to attend the Mushroom Days and/or ISMS conference. It will definitely give you a touch of sensory overload, but it is a very worthwhile way to meet new suppliers, friends and a bunch of 'mad' mushroom people that carry an immense passion for the industry, be it continuously challenging and rewarding at the same time.





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IMPORTANT DATES

on the MUSHROOM CALENDAR



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please email all the pertinent details to nathan@highveldmushrooms.co.za

19th ISMS Congress

29th May – 2nd June 2016, Amsterdam

by Nathan Jones

The life of a compost maker tends to be a bit isolated and remote and while one's personality should be suited to that, it doesn't mean we don't enjoy the odd excursion and bit of excitement. Needless to say, getting the nod to visit Poland and attend the ISMS congress in Amsterdam was a very exciting prospect.

While I owe all my travel abroad to the mushroom industry I am not a seasoned traveler and by my standards this trip did have a jetsetter feel to it ... flying into Paris, connecting to Warsaw, 2 hours by road to Losice for two days, back to Warsaw and onto to Amsterdam for ISMS and then to 's-Hertogenbosch for the Dutch Mushroom days...

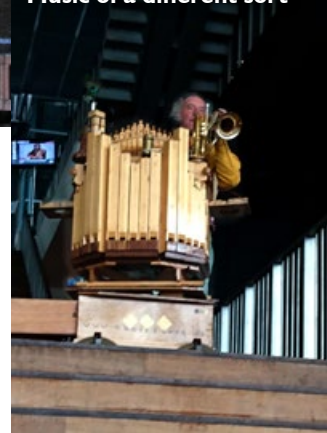
It was my first visit to Poland and I was interested to see some of what I had heard so much of in the last few years. The two days were fairly relaxed and only really included two sites which served more as show and tell topics than anything else. Without reinventing the wheel, it is always interesting to see the various ways to 'skin a

cat' and being exposed to a slight difference in approach or thought can give rise to significant improvements in one's own operation.

The ISMS congress was hosted in the beautiful Muziekgebouw aan 't IJ which functions as a concert hall for contemporary classical music. Partially integrated into



Music of a different sort

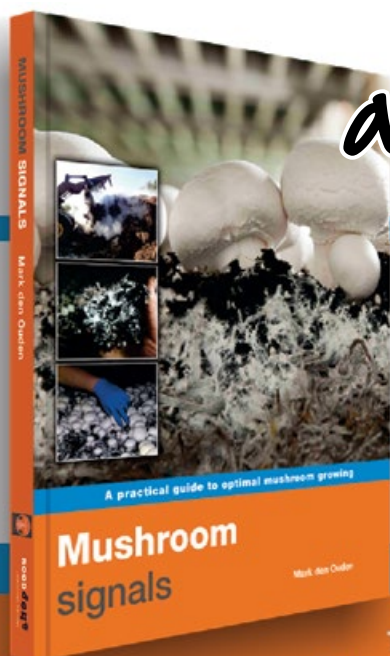


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the Muziekgebouw is the Bimhuis, also a music hall but catering more for contemporary jazz. For this week however, music would play second fiddle to the world of mushrooms ...

Registration took place on Sunday afternoon, 29 May, and set a relaxed yet determined mood for the days to follow. Music, drinks, delectable tidbits and catching up with old friends brought the weekend to a close as delegates settled in for the week to come.



A relaxed setting for intermissions and breaks

Monday morning 09h00 and ISMS 2016 was underway, an explosive dance routine literally kick starting proceedings. Introductions and welcome then laid the platform for the awarding of some accolades which saw our very own Martmari van Greuning being granted honorary lifetime membership for her contribution to ISMS and the mushroom industry globally over the years.



Dr Martmari van Greuning

While the program offered so much to see, hear and do that it was impossible to take everything in, I have to say that listening to Professor Gunter Pauli was one of my highlights. I found his keynote address both passionate and inspiring but at the same time full of substance. His challenge to the mushroom industry to “do”, and make a difference was hard hitting and deliberate and certainly left me in a state of introspection, but also motivation.



Professor Gunter Pauli

As at any ISMS congress, one was spoilt for choice amongst the multitude of presentations which covered topics from practical mushroom growing solutions to highly scientific research to medical clin-

ical trials. In addition, company and facility tours were also on offer and catered for different avenues of thought and interest.

With limited time and opportunity one had to make prudent decisions on what lectures to attend in order to obtain maximum exposure benefit and as a result my focus was on commercial mushroom applications and of course the South African presentations.



Ross, James, John and Nathan

Local expertise delivered no less than 5 talks, which clearly indicated that South Africa is on the forefront of development in the global mushroom industry. Congratulations to Lise Korsten, Werner Rossouw, Ross Richardson, Susan Koch and all those behind the scenes who flew our flag and made us proud.



Dr Susan Koch at Global Mushrooms

Many delegates took time out from the lecture halls to attend the company tours. While it meant losing out on an exciting line up of talks, the tours served as a practical element for the commercial side of the industry, and in that created a platform for business and trade.

In addition to the tours, many suppliers to the industry took the opportunity to show their gratitude to their customers by hosting parties, events and celebrations, which in themselves created an atmosphere of learning, interaction and fostering of relationships.

Due to the combining and slight overlap of the ISMS congress and the Dutch Mushroom Days, many delegates, myself included, were unable to attend the ISMS closing ceremony. This was an unfortunate drawback, but with delegates traveling vast distances and incurring high costs to do so, one must make the most of the opportunity and return home with as much information, motivation and inspiration as possible. In that sense I think the entire event was a success and certainly left a lasting memory in my mind.

Food Safety Challenges Part 2

(continued from part I in the Spawn Run December 2015)

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Background: Food safety is a shared responsibility and requires total commitment from all role players and stakeholders involved in food production, distribution and sales. To ensure effective implementation of any food safety system and to prevent food borne pathogen contamination basic food microbiological principles should be revisited (Dr Kofitsyo Cudjoe, Norwegian Food Safety Laboratory, Veterinary Institute Oslo, personal communication). These include aspects such as:

1. Food containing dangerously high levels of pathogens and chemicals such as toxins, can appear perfectly wholesome (show no abnormality);
2. Measures that are effective in preventing growth of food borne pathogens will not necessarily control microbial spoilage of food;
3. Measures preventing spoilage usually inhibit pathogens but do not eliminate them, especially through proper refrigeration;
4. You can't test food safety into a product.

Keeping these basic principles in mind it is important to reflect on an effective food safety management approach. The following follow-up paper covers basic aspects dealing with mushroom safety, sanitary management and legal requirements.

Some potential food safety concerns:

Mapping out some of the more common and well known food borne pathogens that may have an impact on mushroom production will be briefly discussed. *Clostridium botulinum* spores are commonly found in soil (Jawetz, et al., 1987) and can therefore easily be introduced in the food chain, including mushroom production systems. This pathogen is better known as a food safety hazard in low acid canned vegetables, which includes canned mushrooms (Peck, 2006). In terms of fresh raw mushrooms, new packaging technologies such as modified atmosphere packaging may result in anaerobic conditions which can favour pathogen growth and the production of the secondary products i.e. botulism toxin. Preventative measures include effective hygiene and sanitation management programmes and strict control of the packaging atmosphere, product pH and effective management of the cold chain.

Another important food borne pathogen with the potential to contaminate fresh produce is *Escherichia coli* O157:H7 (Beuchat, 1995). Prevention of grazing by domestic or wild animals in and adjacent to mushroom production plants may prevent contamination of grounds through groundwater. *Campylobacter* and *Salmonella* species are the leading causes of food borne diarrhoeal illness (Van Vliet and Ketley, 2001; Ohl and Miller, 2001). These bacteria are also present in animal faeces but can be controlled by using well composted manure. *Listeria monocytogenes* is another soil-borne food borne pathogen that has been implicated in many disease outbreaks (Haas et al., 2007). This pathogen is of special concern because it may grow under refrigerated conditions and is also found in wild

and domestic animal faeces. Risk reduction is achieved by prohibiting the use of animal manure on crops that grow near or below the soil line, by thorough post harvest washing treatments, and by strict sanitation of processing facilities to prevent cross contamination (Islam et al., 2005). Poor sanitation practices have been linked to Hepatitis A outbreaks (Bidawid et al., 2000). Thus far, none of these pathogens have been reported as causing a disease outbreak on fresh mushrooms, but botulism is well known in canned mushrooms.

Although no reported disease outbreaks have yet been associated with the consumption of fresh mushrooms in South Africa, detection of pathogenic microorganisms on mushrooms has been reported in the United Kingdom (UK) (Personal communication - Peter J McClure, Unilever, Research and Development, UK, 2014), Canada (Canadian Inspection Agency, 2011-2014) as well as the United States of America (U.S.A) (Food and Drug Administration, 2015). In the case of the latter two examples the products were also recalled. The considerable consumption rate of fresh mushrooms (raw and processed) and the potential of food borne pathogen associated disease hazards make it an important topic to investigate and ensure that the product is safe for consumption.

Sanitation Management:

Three of the most important pillars of an effective food safety system are effective sanitation, hygiene and a continuous training programme. Once in place, companies often notice a vast improvement in quality and output. Besides forming the bases for safe food products it also improves on productivity, morale, and customer satisfaction.

According to LaBorde (2001), the Food and Drug Administration recommended eight key areas that should be considered when establishing a sanitation program. These areas can be adopted to provide a more holistic approach for effective food safety management and to fit into best practices.

1. Effective Quality and Safety management system to be implemented throughout the company;
2. An effective training programme for all staff and management to ensure commitment, competence and achievement of desired skills;
3. Effective management of incoming raw material, storage, record keeping and traceability and ensuring access to product analytical and safety data and production practices and quality or safety management practices implemented;
4. Establishment of sustainable water sources and management systems to ensure safety of the water that comes in contact with the product or product-contact surfaces;

5. Environment management to ensure clean facility air and grounds, rodent and pest control and facility sanitation practices;
6. Conditioning, disinfection, and cleanliness of food contact surfaces;
7. Prevention of cross-contamination from unsanitary objects to the product being grown, harvested, packed or transported, food packaging material, and other food contact surfaces;
8. Effective maintenance of hand washing, sanitizing and toilet facilities;
9. Control of employee health conditions that could result in microbiological contamination of products, food packaging materials and food contact surfaces;
10. Protection of food, food packaging materials, and food contact surfaces from adulteration;
11. Proper labelling, storage and use of toxic compounds.

Hazard Analysis and Critical Control Point System:

Today it is internationally recognised that the Hazard Analysis and Critical Control Point (HACCP) system is an effective and rational means of assuring food safety from harvest to consumption. The HACCP is a scientifically based approach that identifies the steps in food production where contamination is most likely to occur, and then puts in place preventive controls. Preventing problems from occurring is therefore the most important goal underlying any HACCP system (National Advisory Committee on Microbiological Criteria for Foods, 1997). Companies must thus have a thorough understanding of their products, raw materials and processes, as well as knowledge of factors that could cause a health risk to the consumer.

Seven basic principles are employed in the development of HACCP plans that meet the stated goal. These principles include hazard analysis, critical control points (CCP) identification, establishing critical limits, monitoring procedures, corrective actions, verification procedures, and record-keeping and documentation. Under such systems, if a deviation occurs indicating that control has been lost, the deviation is detected and appropriate steps are taken to re-establish control in a timely manner to assure that potentially hazardous products do not reach the consumer (National Advisory Committee on Microbiological Criteria for Foods, 1997).

In general, HACCP represents a shared responsibility by all role players along the supply chain and includes all segments of primary production and the food industry ranging from growing, harvesting, transporting, processing, manufacturing, distributing and merchandising food, as well as preparing food for consumption. Prerequisite programs such as Good Manufacturing Practices (GMP's) are one of the most important foundations for the development and implementation of a successful HACCP plan. Several other prerequisite programmes exist such as Good Agricultural Practices (GAP), Good Hygiene Practices (GHP), effective cold chain management, standard operating procedures (SOP's), glass policy, pest control etc.

Prerequisite programs provide the basic environmental and operating conditions that are necessary for the production of safe, wholesome food (National Advisory Committee on Microbiological Criteria for Foods, 1997). Many of the conditions and practices

are specified in state and local regulations and guidelines. So, for instance, does the Foodstuffs, Cosmetics and Disinfectants Act, No. 54 of 1972 and the Health act, No. 63 of 1977 fall under the Directorate of Food Safety in the National Department of Health and is regulated on a provincial and municipal level by Environmental Health inspectors. Several regulations reside under these Acts that directly impact on hygiene in food premises and food safety aspects of food production and transport.

The Codex Alimentarius General Principles of Food Hygiene for instance (CAC/RCP No 5 of 1971) Recommended International Code of Hygienic Practice for Dehydrated Fruits and Vegetables including Edible Fungi (http://www.codexalimentarius.net/download/standards/265/CXP_005e.pdf) describes the basic conditions and practices expected for foods intended for international trade. In addition to the requirements specified in regulations, industry often adopts policies and procedures that are specific to their operations. Many of these are proprietary. In South Africa a National HACCP standard exists i.e. SANS 1033 (SABS Standards website: https://www.sabs.co.za/Business_Units/Standards_SA/index.aspx).

While prerequisite programs may impact upon the safety of a food, they also are concerned with ensuring that foods are wholesome and suitable for consumption. HACCP plans are narrower in scope, being limited to ensuring food is safe for the consumer. Part three will cover additional aspects including organic production and genetic modification.

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It's all about Focused Communications

by Riana Greenblo, Riana Greenblo Communications

Pop-up banners on the SAMFA website:
www.mushroominfo.co.za

Pop-up banners, which open when a user accesses the SAMFA website, efficiently drive traffic to specific interest sections, e.g. Selenium rich recipes, Cancer prevention, or Subscribe to our newsletter.

Attractive banners with a call-to-action (see the examples on the right) assist in capturing the attention of the user and alerting them to website information they may not have looked at during a previous visit.



Mushroom media communication captured 2016's Easter spirit

Easter provides the perfect opportunity to promote mushroom recipes because it's all about good food isn't it? Plus, vegetarians often struggle with the traditional menu that is either about Easter ham or Easter lamb. Our release focused on umami-rich mushrooms as the best, most flavourful meat alternative. And the good coverage we received in various publications bore testimony to the success of the approach.



**MUSH
COMB**

flexible new machinery



new machinery

Automatic Picking Lorries



Shelving

Premium

Heavy duty
Top quality

Economy

Budget friendly
-30% Price

Two product lines
new mushroom machinery

www.mushroommachinery.com

May Coeliac Awareness month



We capitalised on the fact that Mushrooms are glutenfree by running a Facebook campaign and sending out news releases and a dieticians' newsletter.



DES-O-GERM™ SP VEG

Your complete sanitiser
for mushroom farming.
A broad spectrum
Bactericide, Fungicide,
and Virucide.

Environmentally friendly,
non-toxic to humans and
animals, biodegradable
and non-corrosive.

#ManUpToMushrooms campaign: Men's Health Month, June

The #ManUpToMushrooms campaign is an in-store promotion to create greater awareness of the fact that mushrooms are a "good selenium source" and that selenium is a recognised ally in the fight against breast cancer.

The campaign awareness is boosted with a Facebook campaign and on-line magazine banners.

IN-STORE POINT- OF-SALE (stickers and wobblers):



FACEBOOK CAMPAIGN:



MAGAZINE on-line banners



20 QUESTIONS

with **Michael Muzzel**

**Assistant Technical Manager –
Denny Mushrooms Shongweni**

How did you get into Mushrooms?

My Father got me into mushrooms. Whilst studying I realised I needed pocket money, so I started doing weekend duties on my father's Port Elizabeth farm, to earn extra money. The rest was history - Once the mushroom bug gets into your blood you are hooked!

How many years have you been in Mushrooms?

23 Years.

What is most difficult task you have had to undertake while in Mushrooms?

The most difficult task for me and my family was having to go through the closing of our family farms, as a result of a prolonged outbreak of Trichoderma.

What is your greatest strength/talent?

Not many, but I pride myself in my mushroom growing abilities and learning languages.

What is your favourite pastime?

I am passionate about wildlife so, spending as much time as I can in the bush is my ultimate pastime.

If you could change one personality/character trait you have, what would it be?

To be more assertive when it counts and to believe in my abilities.

As a student, what did you want to do or be after your schooling?

Funny enough, I always wanted to be a Game Ranger but unfortunately the pay was not great and my parents advised against it.

What was the most significant event in your whole career so far?

Having to endure the repercussions of a choice an employee made, whilst under my watch, which had far reaching consequences all round.

What do you feel is your greatest achievement in life?

I think it was managing the George mushroom farm, after returning from Australia, and making a success of it.

If budget was unlimited what car would you drive?

Toyota Land Cruiser 200.

Who has had the greatest influence in your life and why?

I would have to say my father. He's been and is a great teacher, advisor and example to me. However, if I'm honest with myself, I have not always listened to his advice. That's what life is all about - you learn from your mistakes.

What is the craziest thing you have ever done?

As a kid I collected feathers and attached them to my arms and jumped off the kitchen table. Needless to say I was never going to be as successful as the Wright brothers!

What are you addicted to?

Chocolates.

Do you have a nickname and if so what is it and why?

Muzzy – a nickname given during my boarding school days.

What is your favourite movie?

Legends of The Fall.

What cheers you up?

Growing Rooms bursting with good quality mushrooms!

If you could be, or were to describe yourself as an animal, what animal would it be and why?

It would have to be an eagle for its absolute strength and ability to soar high in the sky and survey the landscape and see for miles around.

What is your greatest fear?

I would have to say snakes.

What is your favourite meal?

Sunday roast leg of lamb with all the trimmings.

What is the best life advice you have been given?

Always stick to the basics and never presume to know everything there is about mushroom growing, for it always has the uncanny knack of throwing you a curve ball and coming back to bite you.



Thank you for visiting us at the ISMS and Mushroom Days 2016

On behalf of the entire Sylvan team I would like to thank all our clients and business associates for visiting us. We hope you thoroughly enjoyed your visit and our hospitality. We are proud to have welcomed customers from all over the world. It was a truly memorable week for the mushroom industry.

Mel O'Rourke
Managing Director
Sylvan Europe



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