

Bogasari Flour Mills

Technological advances help millers meet consumer needs

by Roger Gilbert, Publisher, Milling and Grain

As new generations come to the fore, changes occur and no more so than in the milling industry. Milling and Grain visited Bogasari Flour Mills in Jakarta, Indonesia earlier this year to report on the refurbishment of three of its 15 production lines by Oerim. The current upgrade is not just about new equipment and the latest technology, it's also about the changing aspirations and purchasing trends of local consumers.

Perendale Publisher's CEO, Roger Gilbert, talked to Franky Welirang, CEO of Bogasari, which is part of PT Indofoods Sukses Makmur, about his views on the future of flour milling as it tries to meet the food demand from a country with 262 million inhabitants spread out over 5,245 km from west to east and encompassing 16,000 islands.

Indonesia is a very long and spread-out country. Its population of 268 million people inhabit some two million square km spread over 16,000 islands. Bogasari is the country's major flour producer and is continually striving to meet the ever growing demand for flour and milled products.

Flour milling lines 'H, I and J' at this world-renowned site, which happens to be the largest producer of flour at a single facility and processing over 11,600 tonnes of wheat-per-day, are being upgraded with the latest Oerim equipment. Over a four-year period, three processing lines have been replaced without losing any production. The whole project will be completed and up-and-running in early November 2019.

With lines ranging from 'A-to-O' that's how the world's largest single-site flour mill allocates its production lines - it has a total of 15 lines processing just over 11,600 tonnes of wheat-per-day in three shifts. All are Oerim-equipped lines. Existing lines 'H, I and J' have been progressively replaced with up-to-the-minute advanced machines, replacing the earliest Oerim milling lines.

Although Milling and Grain visited to look at the new lines and the planned silo development, I took the opportunity to ask Mr Welirang about milling in one of the world's most populated countries.

.....

We would like to see every home kitchen in Indonesia with a 0.5kg of flour on the shelf, just like all the other essentials like salt, pepper, vinegar and sugar.” That’s the goal of Franky Welirang, the CEO of Bogassari, Jakarta, the largest single-site flour mill in the world.

.....

Franky Welirang CEO (left), stood with Erwin Sudharma, deputy director, Bobby Arianto, SVP Manufacturing and Andry Wiryanto, Vice-president Engineering and Technology, his second generation management team at Bogasari in front of a portrait of the founders and first generation of company leaders. The third generation is 'coming in,' says Mr Welirang



Interview with Franky Welirang, the CEO of Bogassari

Q: What makes Indonesia unique in milling terms?

“Indonesia is often misunderstood. From east to west is the equivalent flight time of Abu Dhabi to London, the spread of Indonesia is almost a 10-hour flight. It is comprised of five big islands: Sumatra, Java, Borneo (Kalimantan), Sulawesi and West Papua. 60 percent of our 270 million people are located on Java, the smallest of these five islands. Sumatra is three-and-a-half times the size of Java and West Papua is even bigger. In between there are over 17,000 small islands.

“Urban growth is not particular to Java but is occurring throughout the country and is bringing with it logistical problems for us. Logistics in Indonesia involves significant air, sea and land travel. The price of domestic transport is very high. This is one factor among many that limits our growth.



The Bogasari management team is proud of its ability to train millers. An extension of the Ocrim Milling School, the Bogasari Milling Training Centre ensures all workers are fully trained in operating the latest technologies being adopted by the company



The wraps come off! The last of three production lines after a four-year upgrade of one milling section in this massive facility is complete. The three lines will be fully operational in November this year



Pansifiers were the first to be replaced in a two-step operation that did not hinder the output of the three lines being upgraded

Q: Is the company's aim to provide for the bigger populations first?

"We see across Indonesian cities developing their urban areas. These urban areas are becoming a target for flour. In northern Indonesia there is increasing competition due to the close proximity to Penang.

"Our competition is in terms of costs, availability, consistency and service. Consistent quality requires standardised wheat; different wheat will give different character to the flour, even though it may have the same protein content. This is how we see the market and it is continuously growing and developing. We see Indonesia as it is within ASEAN.

"The major flour industry in the region is probably Indonesia. Over the past 20 years we have been the most competitive and fully deregulated in the flour industry. There are 25 factories in Indonesia. We are the biggest, with four locations. The biggest is here in Jakarta at around 11,600 tonnes-per-day and then Surabaya with around 6000 tonnes-per-day. We took over a company in West Java of 1100 tonnes-per-day and another mill producing 200 tonnes-per-day. All four of our mills are running well."

When asked if the company had considered exporting flour to neighbouring countries, Mr Welirang said that efforts to develop markets for flour products in Myanmar and the Philippines had also been curtailed due to logistical costs.

"We do export to the ASEAN region but that is not our main focus. Besides flour, we also have by-products which we produce for feedmills. We do not have a feedmill yet. Around 50 percent of our by-product is exported to Taiwan, Vietnam, Philippines, Japan, Korea and Middle East.

The other 50 percent of our by-product is used domestically in our own feedmills. I believe that in the coming 10-15 years our current protein supply will not be enough, so we will need to produce a feed with higher protein content. This will come with improved technology. Indonesia has something like 100 feed mills and produces 22 million tonnes of feed," he added.

Bogasari also produces pasta. In fact, it has the largest

manufacturing facility for pasta in South East Asia.

"In the past, 70 percent of our pasta was exported and 30 percent consumed domestically. Now we export 50 percent and 50 percent is consumed domestically due to increased demand within Indonesia. So the domestic market is growing and we are expanding our pasta production lines as well," he adds.

Q: Is the Indonesian diet changing in other ways?

"There are two changes we have seen in the market. The majority of our population are young millennials – below 40 years of age. Today's businesses are on the brink of change which will occur over the next five years. I'm the 'going out' generation, and they are the 'coming in' generation. The first generation has passed, I am the second generation and the third is coming. If you look at the manufacturing side and the trade side, the distributors and the traders, you'll see a passing of generations.

And new industries are arriving. Depending on how industries treat the market, that is a light on the big industries, medium and the small. Sixty percent of our business goes to small and medium industry, the remaining 40 percent to big industry.

"What I mean by big industry is biscuit producers, instant noodle producers and the big bread companies – all with modern facilities. These big industries will try to produce their own flours in the future. Then you have the 60 percent that makes up small and medium enterprises, 'mumma-and-pappa' style businesses producing breads, noodles, cakes, cookies, etc. If we take the modern large industries, they are so advanced, yet their margins are small but stable. Then when you look at the thousands of these small and medium enterprises, that must be included in our distribution, they are growing and have greater margins.

"These businesses need to be well equipped to handle the market. Not only that but the way they trade is changing the system. In short, you have the traditional kind of industries, and then you have the modern type which goes against them. So you have young millennial-type industries developing and they are



Mill Manager Inyoman Arthadana in the new treble-line mill's control room shows that the roller stands can be managed from his tablet, which provides the same information as he had access to in the control room alone



There is more to this up-grade than just a replacement of the roller mills

using modern online methods including social media to sell their products.”

“It’s a very different approach to the way bulk flour is sold,” he adds. “To understand the pioneering of new industries, these are home industries. They grow through friends, birthday parties, marriage and also during festival seasons. The young generation is different—they identify through an online market as artisans - and they are making business through it! They pay a lot, many times the normal price and they queue for three months waiting for product. Their claims are health with good packaging and home delivery. The trade in grains is also changing, you have the traditional and the modern. In answer to your question I believe that all aspects of the market is undergoing these kind of changes.”

Q: How do you cope with being such a huge flour producer on a daily basis while customers are buying small and smaller packs online. Are there changes taking place in your company to address this?

“We normally sell in the 25kg bags, now we have 5kg, a 1kg and a 0.5kg. We also sell online, and the company keeps an accurate tracking of its sales through normal distribution channels”, he adds. “Basically we are tracking our product, our distributors and our grocers. Flour is an intermediate product, it is totally about how to market it. For example, who is making cakes for sale, etc. The more people making cakes and bread the better our market is for flour.

Baking equipment is also very important. If it doesn’t exist here, the flour market is not growing. All of the mixers and such like



need to be available across the whole of Indonesia. Secondly, the market for additives and yeast products must always be available.”

Q: There are thousands of islands that make up Indonesia. On the more obscure islands do people have access to baking equipment?

“That is the challenge we face. We are working together with a baking centre. We train people how to bake and make cakes, so people with no prior knowledge can make quality products at home. Our task is not merely selling flour, but creating new business people and job opportunities. What we have to try and promote is the end product of flour, jointly with those who make them. If we can do that then flour will be purchased. Promoting cakes and biscuits and pasta products promotes the use of our flours.”

Q: In the distribution system that you have, if you had an order online for 1kg of flour on a small island out there, can you deliver it?

“We try to identify all the shipping routes. Basically Indonesia is built up of provinces, regions and villages. We identified that there are 83,000 villages throughout Indonesia. Out of those, if 50,000 villages are developing we need to be present in those

villages. Our marketing needs to reach the smallest of the villages.”

Q: How much of Indonesia’s population is accounted for in these villages?

“Something like 70 percent. We supply urban and rural areas. Indonesia started life on 28th October 1928. Before this there was no nation of Indonesia. Today, it is a nation country, not a country of nations when we received independence from the Japanese in 1945. Prior to this it was kingdoms with many sultans and kings, which still exist. All of the regions still have their kings. The kings accepted Indonesia; they wanted to be together. We are different here in Indonesia, so we require a different approach.”

Q: Do you think that, looking towards the next generation, Bogasari will build more flour mills outside of Java?

“No. It should be more centralised in order to lower costs. We can beat the logistics by having a warehousing system that is subject to volume. And we must study how to manage our mills well. But we must also consider the logistics of wheat, the packaging used and market availability. When we go to a region we study these barriers.”



Doubled-up roller mills for the first break are just one advancement of the new lines being installed at the Bogasari flour mill

Three mills upgraded at Bogasari

Of the 15 lines at the Bogasari mill in Jakarta, three lines were deemed to require upgrading.

Each of these three older lines was processing 800 tonnes of wheat per day and within the same footprint each new line is now capable of outputting 1200 tonnes per day. To achieve this 50 percent production increase on the same footprint, Bogasari has gone for Ocrim’s latest ‘modular’ milling system, a concept that allows mill managers to shut down parts of a plant when needed without reducing productivity. The three lines also carry the latest ‘tablet’ connectivity using WIFI connections allowing the operator to move around the mill without relinquishing control or having to rely on an operator in the control room.

Other key improvements include the company’s latest RMX roller mills - which use predominately an all-stainless steel construction for food grade surfaces - through to the SFI/M modular sifters.

To minimise a reduction in capacity during the changeover, the existing lines were replaced one at a time. This allowed production to continue uninterrupted on two lines throughout the four years it has taken to make the upgrade. The first step in the process was to upgrade the cleaning systems for all three lines in a two-step process and to minimise downtime. Once that had been done, then work started on the mill itself.

This is a ‘swing mill’ which can run both hard and soft wheat. Each line is supported by eight plansifters. In total this three-line facility boasts 135 roll stands, and like the rest of the Bogasari site all equipment is provided by Ocrim. There is an energy-saving element to the mill with general inverters on the pneumatic system. And even the layout of the mill has been re-orientated to achieve energy savings.

Q: Are you fortifying flour in Indonesia and, if so, have you seen health benefits?

“Yes, it is obligatory for flour in Indonesia to be fortified. We started fortifying flour in 1999. I think we were the ones that promoted the idea to Africa. When we first started we tried to identify health improvements. In 2000-01 we went to primary schools and gave children two pieces of bread every morning and took occasional blood samples. Most village children go to school without breakfast. We gave them two pieces of bread because they would save one piece of bread for home and eat the other. If we had of only given one piece of bread they would have just taken it home.

“The bread was baked at nearby bakeries. We ran this program for one year and compared the blood results and found that the iron intake and fibre was greatly improved. This study was supported by the leader of the village and in that particular village people would follow their leader’s decision. This study was held at three primary schools in the village and it was great to see the positive results. We began our studies in 1998, as we were the biggest flour producer. We did this voluntarily and other companies followed suit.”

Q: In packaging 0.05kg and 1kg bags, what is the shelf life of a bag?

“One year. All of our 25kg bags are polypropylene bags and they are 100 percent bio-degradable, we offer the only bio-degradable polypropylene bag in Indonesia. Nobody respects this. Next we will be releasing a 1kg bio-degradable bag. Our bags take two years to bio-degrade, none of our competitors are using bio-degradable bags yet. We have received complaints from our customers because they can only use the bags one time—additional use causes them to break.

So you can see why we are not being supported with our bio-degradable bags. The argument is between bio-degradable and recycling. The world is still undecided on the two ways of looking at this.”

Q: Finally, does Indonesia produce its own wheat?

“100 percent of wheat is imported. There is not enough suitable land in Indonesia to grow wheat. We only have 190 million hectares, 50 percent of which is considered ‘tropical protected forest’. The land we can use is about 18 million hectares, and that is used by the population, as well as coconut, coffee and rice plantations.

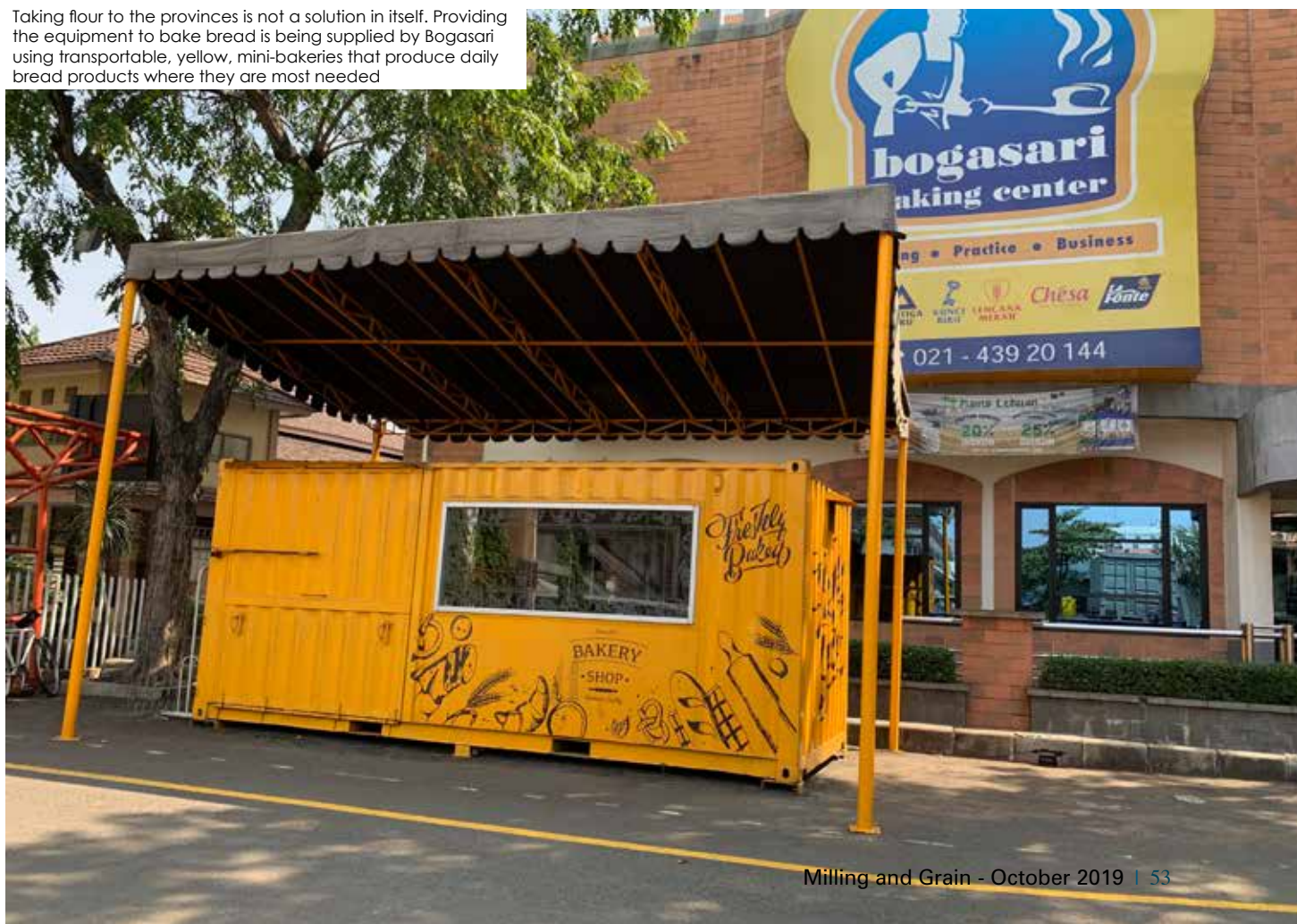
The government policies are prioritised towards rice production. This does not mean that we cannot produce wheat in Indonesia; we developed and have had support in the past for developing what we called tropical seeds.”

Q: When you buy wheat internationally, where do you source it from?

“Basically the wheat we buy is dependent on competitiveness and quality. Our traditional suppliers would be Australia, America and Canada. We have the others, which are considered non-traditional suppliers, are Latin America, Eastern Europe, China, India or Pakistan, but generally there is more dust impurities in the wheat and so this decision is made subject to price.

“Australia has a close proximity and is usually our biggest provider, but in the past few years this hasn’t been the case due to weather and the resulting crop failure. In the past it has been typical for around 55 percent of Indonesia’s wheat to have been imported from Australia, I think today this is lower than 30 percent. Now we are importing more from the USA and Canada.”

Taking flour to the provinces is not a solution in itself. Providing the equipment to bake bread is being supplied by Bogasari using transportable, yellow, mini-bakeries that produce daily bread products where they are most needed





Above: A panorama image of the greenfield site where work has begun on 12 silo configuration to contain 36,000 tonnes of wheat

New silos at Bogasari

Bogasari has broken ground to start the construction of foundations for its new 36,000-tonne nest of wheat silo storage at its dock side in Jakarta. Ocrim is the general contractor with GSI bins being installed. The silos should be operational by mid- to late-2020. There are two key elements of this new storage facility. The first will be its ability to transfer up to 1000 tonnes of grains per hour from jetty to silo.

When Milling and Grain visited Ocrim to attend its 2019 Open Day - ‘Wheat, flour and ...’ - in mid-September we saw the new bucket elevator head and foot under construction. It’s an impressive piece of engineering and will pull 80-metres of 13mm rubber belt that will be 1.45m wide. This 13mm rubber belt will have a row of seven buckets across in a wave formation to help distribute the load and will have eight rows of buckets per metre.

A second and almost more impressive advancement in silo construction is the new ‘protein-based mixing system’ Ocrim is adding to the facility. It will blend based on protein content of the wheat coming in using inline NIR monitoring, rather than the traditional method of blending on volume.

The inventory operator will be able to blend to the protein requirement needed as the wheat exits the storage facility. This will replace an estimating system with a predictive approach.

This application is not only new from Ocrim but is new for the market and while it is based on regularly available NIR equipment the technology Ocrim has developed around the system uses Industry 4.0 standards with traceability in mind, and provides a unique concept designed and installed by the company.

The silo manager will also have access to accurate information from within the bins on content, levels and product temperature ranges. The storage system will also integrate with a truck movement and tracking system around the extended site, monitoring trucks are and what products they are delivering or up-lifting.

www.ocrim.com
www.bogasari.com



Below: The top and the bottom of it - The massive foot and head rolls of the bucket elevator take shape at Ocrim's engineering plant that will lift grain some 40 metres on a 1.45m-wide belt with seven rows of buckets per metre to achieve 1200 tonnes per hour to be lifted



The dock-side is constantly active with ships from the largest 80,000-tonne Panamax unloading day and night using two Nero unloaders. The new Ocrim/GSI silo storage facility will be built adjacent to the port and a short distance from the mill complex