



# “Wheat, Flour and...”

by Roger Gilbert

## Part 2: Conference topics

**T**he seventh edition of “Wheat, Flour and...” hosted a conference that touched upon many different important topics.

This way

Ocrim has still confirmed its experience and versatility in understanding customers’ needs and expectations. In fact, many various topics were examined: from flour improvers (Lutz Popper) to blending and micro-ingredients management (Fabio Vuoto), as well as Sanitation (Marco Galli) and BioStoneMill (Stefano Mazzini). We have featured these full speeches in the latter half of this article.

Flours blending with or without micro-ingredients are an important step in flours management in order to obtain products that are different among them and useful for several exigencies.

Ocrim, during these last years, has focused its attention just on these points and has developed different solutions in order to supply its expertise both in technical and technological field. The company has invested a lot toward this direction in order to find the right approach and offer the right solutions with the maximum flexibility to the Market.

Another topic, which gained a lot of attention, was the one of Galli’s presentation about “Sanitation”. A week of explanation could not be enough for this topic since it’s very complex and full of argumentation. Galli talked (above

all) about cereal bacterial content during the cleaning process and how to destroy moulds and contamination in the mill.

Regarding the bacterial content problem, Galli said that Ocrim has foreseen a new conception machine for the soft wheat processing, which is very abrasive and with debranning technology, which is able to brush efficaciously the inlet wheat in order to have two effects: Light debranning in order to improve the inlet product in the mill and with fundamental effect to destroy the cereal bacterial content that is contained in the external part of the grain. This is a high-efficiency machine, which is able to reach these two important goals.

Concerning the mould and contaminations problems in the mill, Ocrim R&D dept. has concentrated part of its “energy” on an important machine: The Plansifter. The experts have paid a lot of attention on the sieves material, which is already in plastic material. They worked to improve that plastic material able to destroy moulds and bacterial problems.

After extensive research and tests in specific milling plants and after several and accurate comparisons carried out at OCRIM’s laboratory, the sieves proposal foresees a particular anti-mould and anti-bacterial product, which keeps its efficiency for a long time and guarantees the total destruction of mould and bacteria.

Finally, Stefano Mazzini talked about the BioStoneMill, a new machine and a new cereal processing line, which is gaining a lot of importance in the field

of niche products. The BioStoneMill is conceived as an independent line or integrated in a cylinder industrial milling plant. The aim is to supply a machine that is linked to the most traditional concept of wheat processing but studied and designed through modern industrial and technological concepts.

Ocrim’s challenges are more and more ambitious and diversified and OCRIM works hard in order to find always the perfect bond between industrialised, high-tech and modern products meeting the customers’ demand.

### The speeches

Ocrim is looking at new ways to guarantee flour quality and safety while improving energy efficiencies in flour milling processes.

At the recent Ocrim conference, ‘Wheat, Flour and ...’ held for its key customers and hosted in the Italian town of Cortona in Tuscany, Marco Galli, the company’s technology director, explained a new development for a traditional piece of equipment that may well make a significant difference in the production of safe flour while reducing processing costs. It involves the introduction of ‘diamonds’ to that ubiquitous piece of milling equipment, the scourer.

Secondly, Stefano Mazzini, the company’s commercial manager, explained a change of direction for the humble stone mill, a traditional piece of equipment that may offer the consumer new flour-based products on a ‘small-business’ basis.



## Sanitation: New frontiers Diamonds are a ~~girls~~ miller's best friend

by Marco Galli, Technology Director, Ocrim

At the end of 2006 the European Commission introduced regulation EU N1881/2006 that set maximum levels for contaminants in foodstuffs and also a maximum level for contamination of heavy metals.

However, for foodstuffs contamination can be defined in terms of physical, chemical and biological substances and materials.

Physical materials include particles and foreign bodies such as glass, stones, earth, metallic and/or plastic parts, non-ripe kernel, foreign seeds, dust, etc. while chemical contaminants include heavy metals, pesticide residues, herbicides, residues of disinfectants both in grain storage and in the environment.

However, it is the biological materials, including bacteria, fungi, moulds and mycotoxins to name the main ones, which Ocrim is developing new processes to help millers combat.

Our research and development centre has identified two solutions to help combat some of these contaminants – they are

a new model high-efficient scourer (SHE) that we are working to develop plus the development of anti-microbial sieves.

These two tools will be used to try to counter bacteria problems in particular.

We're beginning to market the machine we're testing with the specific purpose to finish the superficial cleaning of the grain and limiting or reducing contamination.

Our goal is first the reduction of ash content in wheat, followed by the reduction of the bacteria content, the reduction of heavy metals contamination and the reduction of pesticide contamination through light scouring which improves maintenance intervals and is easy to retrofit into existing machines.

### The scourer

The scourer has a new polygonal cover, diamond bands secured inside a retention device.

The polygonal cover has 16 sides, which help to overcome the 'spiralling' effect of product between the rotor and the cover. This allows a breakdown of the product flow with a continuous remixing ensuring greater efficiency in the abrasion phase and greater efficiency of micro-impacts on shrivelled and empty wheat.

The abrasive diamond bands are as distinctive as they are innovative and comprise of Ocrim's unique technology.

This means their lifetime is longer, they create greater abrasion efficiency and there is greater mechanical resistance. The new machine has four diamond bands, which alternate to discharge plates in the bottom of the rotor.

Ocrim's technology is based on the deposit of a thin layer of synthetic diamonds on the supporting metal base. Synthetic

diamonds have granulometric distribution guaranteed and are defined according to their use.

They guarantee constant effectiveness over time and they can almost be forgotten about, as they do not need replacing at all frequently.

In fact, the loss of covered surface is only obvious after processing some 200,000-plus tonnes of grain. In that time, they may lose their covered surfaces compared to new ones. They are only reduced in size by 15 percent.

We can calculate that based on the useful lifecycle of approximately 400,000 tonnes on a production process of between 10-12 tonnes per hour, these bands can achieve a lifecycle without maintenance of 40,000 hours of work.

Traditionally, scourers are not very efficient requiring frequent maintenance, they are high energy consumers and have a reduced 'rubbing rate'. Our conclusion is the traditional scourer is not an efficient machine. Without abrasive parts the power involved and wear rates are very high.

However, wheat rubbing on the abrasive diamond bands produce surface cleanliness and a separation of cortical fraction while considerably lowering power consumption.

### A little more detail

So, what actions have we taken?

Whilst these goals are difficult to achieve, we have achieved some and are working on others.

We've introduced screen diamond bands in a retention device.

Why have we chosen this type of screen? Simply to avoid the so-called spiral where a product goes through the machine without being really processed.

This new shape makes it possible to interrupt the flow inside

the machine providing an end benefit of better yield and greater efficiency and effectiveness, all because this constant contact of wheat interacting with the abrasive bands.

It is a technology that we are developing further; it's already used in our scourers.

It provides a greater duration, efficiency, and mechanical resistance and is applied in our machines with four diamond bands. We wanted to analyse how long this material can last as well as testing the wear on the individual diamonds and the results after about 200,000 tonnes are impressive.

We have a reduction of about 45 percent of the surface and reduction in dimension of about 15 percent.

What does this mean? It means that if we were to consider the maximum deterioration in the lifecycle of the whole system, there are years of work, so in a sense you could forget this machine except we would need to have an effective and efficient machine that did not require maintenance work every two months!

### Energy consumption

Another important factor is energy consumption and efficiency with these scourers because nowadays one tries to increase the rubbing between the grains of wheat and this is a very great effort that produces a very limited result.

When we considered this idea, we also thought of all the people who have a machine and ask themselves "What can I do to improve their investment?"

So we felt that what has been presented right now can easily be adapted to the machine you already have and this is for two reasons: 1) First of all, so that we take advantage of innovative technology without having to make a major investment and 2) to safe-guard a company's assets which we believe is very important.

Another important aspect, especially in the European market, is the aim to provide flour that is pure from a microbiological standpoint while preserving all the characteristics of the whole wheat.

### The plansifter

To avoid the development of mould inside the plansifter, our Research and Development Centre has developed what we have defined as an 'anti-microbial sieve'.

The solution proposed by our Research and Development team involves a compound with anti-microbial parts that is integrated to the material itself.

This new product is suited for use in milling systems with no negative consequences and it does not interfere with the characteristics of the flour and it lasts for a long time so it presents a number of advantages in the long term.

We're not saying that this product can reduce mycotoxins, but we have seen that this product does succeed in a way to inhibit the development of fungi so it is possible at least to limit the development of mycotoxins within the mill.

The fungi's static activity has been proven and this ensures many benefits, which cover a number of contaminants that today are more or less present in flour.

The way in which Ocrim makes sieves ensures that they can be used in any kind of machine, by any manufacturer. I think that this is a very important concept because it makes it possible for users to have an updated machine, making gradual investments.

To conclude, with sanitation there are no shortcuts so it's important to achieve and maintain a certain level of sanitation, which involves constant work and constant research.

Our message is that we stand at the miller's side looking for new solutions so that they achieve this important objective in the easiest possible way, on a regular basis and at lowest possible cost. ☺



## The 'taste' of the 'BioStone' mill

by Stefano Mazzini, Commercial Manager, Ocrim

Stone milling has a 'taste of ancient values' and the flour is believed to be more digestible.

It's a slow process where the product is not heated and is exposed to highly versatile grind that makes a range of different food products that today's discerning consumer are seeking.

At last year's open day, we highlighted the pros and cons of stone milling but this year we're looking at things from a different stand.

Industrial flour milling can lead to all of the requirements of all the world population because over the years it has adjusted to the nutritional values that were changing, but now more and more the market is looking for new products.

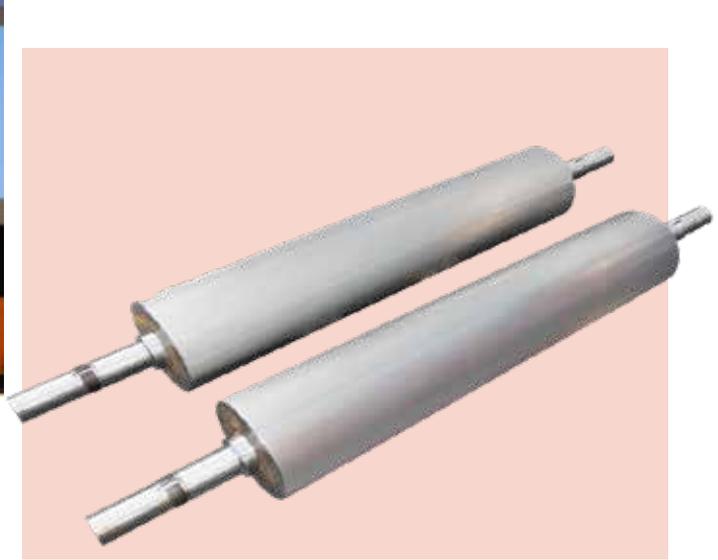
There are new requirements and people are trying to rediscover old tastes, old traditions while maintaining very high levels of sanitation.

Stone milling in recent years has provided some answers because it does have the ancient tastes that show their flours are digestible. Stone mills process grains more slowly - so the product is not heated - and it makes it possible to process small quantities in a dedicated environment that is well suited for small businesses.

It is versatile and makes it possible to mill different cereals and it is also possible to create very different food products, which is what the market is asking for and as entrepreneurs we need to meet the public requirements.

If you look on the Internet, you will find dozens of companies that produce mills, but why has Ocrim entered this market which is a niche market and where there's very strong competition?

But Ocrim has 70 years of experience in the processing of cereals and clearly it's a great company that is known worldwide.



So Ocrim will be excellent in its interpretation of stone milling but before making this investment, there are some questions that we need to answer. We need to see if there is a market for this product and the questions are what can I process with a stone mill? What can I produce and what can I obtain? What are the benefits or characteristics of the final product and will we make a profit?

### A different type of product

With stone mills, we can process a lot of different types of cereals such as; barley, rice, rye - and these are results that we couldn't achieve with mills that we use today.

We will obtain a very different type of product even though we have reduced capacity here, we would have semi-whole wheat with products but with better nutritional qualities.

But what are the benefits of stone milling and in particular for whole wheat?

First of all, we exploit the germ because the nutritional qualities are preserved so these products will obtain a high-added value because they have other benefits such as vitamins, proteins, magnesium, calcium and fibre.

In addition to these benefits in terms of health, these are flours that enable products that are more digestible, with a stronger aroma, more taste, can be better preserved, better nutritional value.

But an important aspect has to do with financial accounts - there is already a market for this and it will grow.

Also, it would make it possible for us to sell in small shops or supermarkets.

But stone milling will never replace the milling systems that we use today, but it will be complimentary. ☺

