

Maximising juice yield and press capacity in a highly competitive environment

Pectinex® YieldMASH™ gives up to 2% higher juice yields and 15% higher press capacity compared to the current benchmark.



Juice manufacturers can now unlock more profits from their apples.

“The launch of Pectinex® YieldMASH™ in the juice industry has brought new standards in juice extraction in terms of both performance and value for the customer,” says Frederic Issenhuth, global marketing manager at Novozymes.

Pectinex YieldMASH facilitates extraction of juice from the fruit matrix during the pressing process, which for juice manufacturers means:

- more juice from 1 kg of apples
- lower processing costs
- smoother processing conditions
- greater overall value for the fruit processor.

Pectinex YieldMASH gives up to 2% higher juice yields and 15% higher press capacity compared to the current benchmark. These figures may not sound spectacular, but they

are if we consider that we’re taking juice yields from 94% to 96%, which is fully convertible into profit for juice manufacturers.

Competitive market

The juice market is very competitive, not only for enzyme suppliers but also for producers of apple juice concentrate. Profitability is a key challenge in the juice industry because:

- raw material availability is limited, meaning that producers have a lot of free capacity
- China has developed into a highly competitive apple juice manufacturing country.

Poland and China are the two largest juice manufacturing countries in the world. In 2005, harvests were down 25% on the previous year in both these countries. This led to fierce competition among processors to get access to raw materials, which had a major impact on the price of apples. In 2004, the price in Poland was EUR 0.052 per kg, but this rose to a record level of nearly EUR 0.143 at the end of the 2005 season. Consequently, the profit margin for Polish producers was squeezed because they could not pass on such high prices to the world market for juice concentrate. Jan Cissowski, Novozymes’ account manager for Central Europe, who is responsible for the juice industry, feels

that Pectinex YieldMASH has proved very successful in helping customers to retain profitability in the highly competitive Polish market.

Meeting customer needs

Customer requirements are very specific:

- maximum juice yield
- maximum capacity during pressing
- ability to extract pectin from the pomace
- smooth downstream processes.

Customers want to get the most out of their raw material. Pectinex YieldMASH increases juice yields by up to 2% for both fresh and stored fruits, which represents a significant improvement.

Press capacity is another key issue; all customers want shorter processing times. Pectinex YieldMASH increases press capacity by 15% on average, with peaks at 20%. And this applies to both horizontal and belt presses, which represent 90% of the press market.

“Our trials showed that we can meet customer expectations when performance is compared with competitor products,” says Jan Cissowski.

“Pectinex YieldMASH increased both juice yield and press capacity, and we also achieved drier pomace.”

Dry pomace is a clear indication of the effectiveness of the enzyme, showing that more of the juice has been squeezed out.

“Our product is very competitive, not only from the point of view of performance but also in terms of price,” says Jan Cissowski of Novozymes, who covers the Polish juice market, among others.





Smooth processing

Pectinex YieldMASH only degrades soluble pectin, leaving insoluble pectin untouched. Pectinex YieldMASH will not therefore destroy the structure of the mash or release any additional substances that could create problems during later processing. This offers a major advantage over competitor products and previous Novozymes products. "Furthermore, we have not seen any downstream problems when customers use Pectinex YieldMASH," adds Jan Cissowski. According to him, Novozymes is improving its market share in Poland and Hungary.

Coming to terms with shorter seasons

"Capacity is an important issue because the apple season is getting shorter," says Jan Cissowski. "In the past, apples were harvested over a period of three to four months, but today it's down to two months due to industrialisation of agriculture. This forces juice manufacturers to process the same quantity of fruits in two months rather than three to four months with a peak period of two weeks. So the customer's need for higher press capacity is increasing."

Value for money

"Our product is very competitive, not only from the point of view of performance but also in terms of price. It creates value for the customer - a key issue - and although the price is similar to that of the former products,

Pectinex Smash XXL and Pectinex SMASH, the performance is much better," says Jan Cissowski.

Acceptance around the world

Pectinex YieldMASH is working very efficiently for both high-acid apples such as those in Poland and low-acid apples such as those in China, Italy, Spain, Argentina and the USA.

Polish apples, which are typically characterised by low pH and a high content of polyphenols, make processing difficult compared with apples from, for example, Italy, Spain or Turkey. If Pectinex YieldMASH works so well with Polish apples, it should be even better with raw materials from other countries.

The natural acidity of apples changes from pH 2.93 at the beginning of the harvest in August to pH 3.2 or 3.3 at the peak of the season in September and pH 3.5 at the end of the season in October. It is crucial to have an efficient product at the start of the season because apples are more acidic. The goal in Poland is therefore to have an enzyme that is able to maximise the use of highly acidic raw material and to achieve a price premium for high-acid apple juice, which is perceived as having higher value.

The response from the Chinese market has also been very favourable, with many customers ready to order Pectinex

YieldMASH for the 2006 season after conducting trials at the end of 2005.

Li Qun, Novozymes' sales manager for the juice industry in China, outlined the results from a series of trials: "One advantage is the yield; most plants recorded an increase of more than 1% compared to the current benchmark. Another advantage is that the press machine can work more efficiently. But the most important advantage, in my opinion, is that the juice contains less colloids (only soluble pectin is degraded) and is thus easily depectinised by enzymes such as Pectinex 5XL later on in the process. A further advantage is that the colour is lighter than with Pectinex Smash XXL, which is a perceived quality parameter for our customers."

"The evidence from both Poland and China clearly shows that Novozymes has succeeded in developing a true innovation for mash treatment. Pectinex YieldMASH is setting new industry standards for both juice yield and press capacity," says Frederic Issenhuth.

Pectinex YieldMASH complements the other enzyme products in the range for juice depectinisation, starch degradation and improving flux rate during ultrafiltration. ●

FOR MORE INFORMATION
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