

Key issue: pre-ferment

THE USE OF A PRE-FERMENT FOR BETTER DOUGH DEVELOPMENT AND LEAVENING IS AS OLD AS THE ART OF BAKING



++ Frank Henze
Sales Manager of IsernHäger



++ Dietmar Pabst
CEO of Pabst Apparatebau



++ figure 1

++ figure 1
Small, compact, mobile – refrigerated equipment for wheat pre-ferments (see table on page 42)

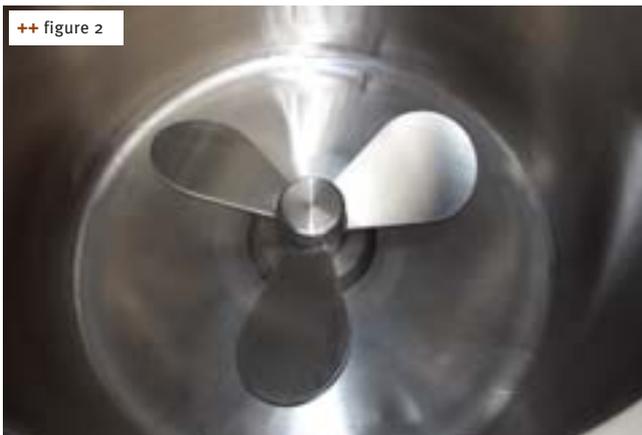
++ figure 2
Propeller stirrer of the pre-ferment plant for wheat sourdough

++ figure 3
Powerful stirrer of a small artisan soaker plant

+ The IsernHäger Group, a company near Hannover, Germany, specializes in equipment, cultures and transfer of know-how in this technological sector.

The history of Dietmar Pabst and his company would not have been the same without the German reunification. The engineer from Magdeburg had originally specialized in construction site equipment. However, as often the case in the former German Democratic Republic, things developed differently than had been anticipated. His first job after finishing his studies was in the dairy industry where he had to deal amongst others with mixing tools and heat exchangers. At that time he might not have realized that he was about to establish a basis for his activities today.

Now Dietmar Pabst is the boss of a small, but powerful equipment manufacturer in Burg near Magdeburg which is part of the IsernHäger Group and specializes in pre-ferment equipment. He works together with the company's technologists with the vision to produce all types of pre-ferments safely and allowing them to be reproduced and incorporated into fully automatic production processes. Congenial partner and co-owner of the Pabst Apparatebau GmbH is the IsernHäger GmbH & Co.KG. About 30 years ago, in the quiet town of Isernhagen near Hannover, Germany, a system was developed with the intention of facilitating the production and use of rye sourdough by frequently supplying cultures to bakeries and offering specifically de-



++ figure 2



++ figure 3

veloped fermenters and a large variety of services and application advice.

In the meantime, it has turned into some form of pre-ferment system supplier which specializes in all types of pre-ferment and sourdoughs, soakers and hot soaker doughs as well as aroma starters. Besides cultures and technology, the company offers a broad range of advice, seminars, support in quality assurance issues and much more.

In Burg near Magdeburg, the regional capital of Sachsen-Anhalt in Germany, Dietmar Pabst and his 16 employees are involved with the technical side of the pre-ferment issue. In-house production is carried out to an extreme depth – containers, stirrers, cleaning systems and controls are developed within the company – equipment is produced with the focus on an industrial scale and volumes of up to 3,000 kg per container (see table) can be linked to form a complete line of mixers, fermenters, cooling and storage tanks. 80% of all orders are tailor-made and designed for the respective quality requirements and the available time periods. More than 50% of the equipment is destined for export. Next to different types of fermenters in various sizes, yeast dissolving tanks and bread mixing plants for the processing of scrap bread are also part of the product range.

Long gone is the time when the customers' pre-ferment ranges were limited to rye sourdoughs. Today, fermented wheat, spelt and oat doughs are used: grain and seeds are pre-soaked or blanched to create individual flavor profiles as well as to provide for prolonged fresh keeping due to increased water absorption. For each requirement, IsernHäger will deliver a suitable plant, developed in cooperation with Pabst. The range of stirring tools alone goes from several propeller types to anchor agitators with and without flow breaker, with and without scraper, and various paddle stirrers. A similar variety is available

Equipment diversity

Type of equipment	Equipment size in kg capacity
Soaking/aroma equipment	100 – 500 kg
Rye fermenter	100 – 3,000 kg for one-stage fermentation type Detmold (special German fermentation process); 600 – 1,500 kg for multi-stage fermentation (limited volume because of temperature control and pointed bottom for mother sponge)
Bread fermentation equipment	200 – 1,000 kg
Wheat fermenter	200 – 2,000 kg
Yeast suspension equipment	300 – 600 kg
Bread mixer	300 – 600 kg +++

in terms of geometry of containers and selection of pumps.

Customers constantly ask for linked systems with the possibility of continuous discharge for use in large monolines. Frank Henze, responsible for the sales at IsernHäger, explains: "This refers to a combination of batch fermenters which transfer the mature product into a storage tank from which it can be fed continuously into the production process." Most of the customers still choose batch processing. This is more flexible when it comes to expansions and also minimizes the risk of cross-contamination. The systems' engineering solutions provided by Is-

ernHäger for the world-wide market have very little in-common with the free-style fermentation in the mixing bowl. So-called pillow plates in the walls of the containers ensure quick and accurate temperature control of the fermentation material and thus controlled and uniform flavor profiles and activity levels of the pre-ferments. Containers, tanks and pipelines have almost no dead spots and are designed for easy cleaning and high hygiene standards corresponding to the requirements common in the dairy industry. Rotary spraying and pig systems ensure this condition in practice as well. ▶

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++ figure 4

++ figure 4
Large tank with cone bottom suitable for multi-stage processes with a small amount of temperature-controlled mother sponge



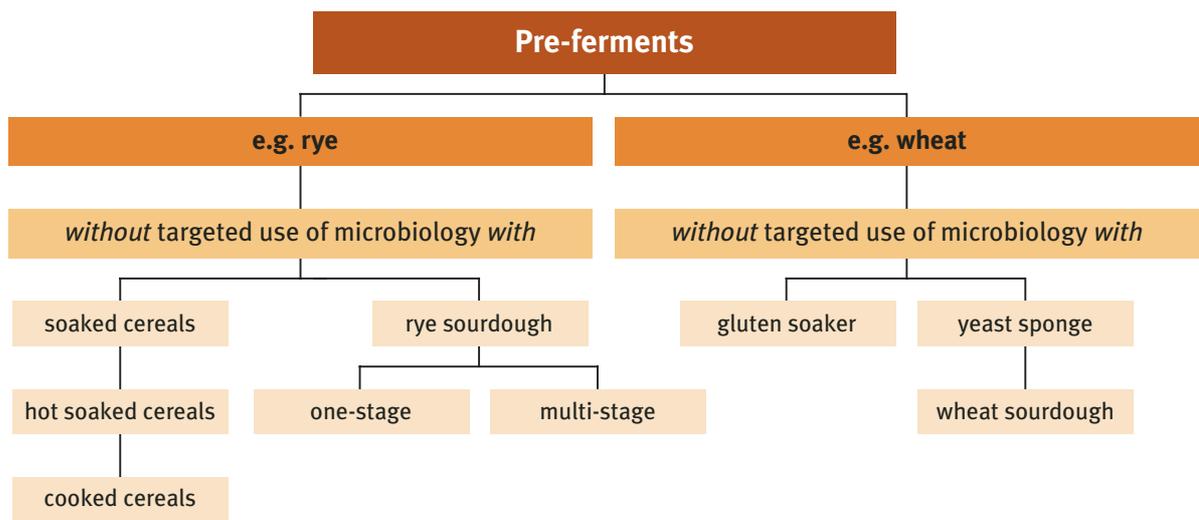
++ figure 5

++ figure 5
An aroma plant including cooler and storage tank in industrial scale ready for dispatch

Regarding the development of the controls, the IsernHäger Group places much attention on the fact that all process relevant steps are stored and secured by their own control. For integration into higher process management systems, respective interfaces are available. The latest joint development shows impressively how fruitful the cooperation is be-

tween pre-ferment technology and systems engineering. This development is rather small, compared to the soaking and aroma equipment, but nevertheless powerful. It will be introduced at the next Südback in Stuttgart, Germany: a compact, mobile wheat pre-ferment plant with integrated refrigeration. +++

Definitions (according to IsernHäger)



Aroma starter: For an aroma starter, whole grains, flours or whole meal from rye, wheat or spelt are heated together with water and a special starter culture. After 3 hours at 65 °C, a number of natural maltose substances and flavorings are developed. The amount of starter added to

the dough can be varied and determines the taste of bread, rolls, Danish pastry and other cakes.

Bread fermentation: Two-stage process with long floor time during which half of the solids may be replaced by scrap bread. +++



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