



## Case Study

iglo GmbH

Industrial PCs support logistics  
and capture data processes for harvesting  
spinach, cabbages, and herbs



noax industrial PCs facilitate comprehensive data capture in spinach harvesting machines

## Industrial PCs ensure maximum traceability from field to plate

"The dollop of real cream really hits the spot!" Ever since Verona Pooth featured in this advertising campaign for iglo back in 1999, these leafy vegetables with a hint of cream have become a real cult product. The commercial saw the raven-haired TV star announce that the spinach tasted so fresh as a result of being harvested and frozen in the perfect time, with between 120 and 360 minutes from field to flash-freezing and packaging at the iglo

"We have been so impressed by the performance of the noax industrial PCs."

factory in Reken, Germany. Whether it's "leafy spinach", "creamed spinach", "baby spinach", "leafy spinach with feta", or any of the other five varieties found in supermarket freezers, up to 90 percent of this produce comes from Reken in the district of Borken, North Rhine-Westphalia. This is where the spinach is cultivated and handled immediately after harvesting. To ensure iglo receives just the right amount of product to meet its needs, the food manufacturer has specific cultivation contracts in place with 110 farmers. The spinach is handled in the Reken-based iglo factory, and it takes 15 minutes to get to the facility from the field.

### Sustainable growth

The spinach is gathered using special spinach harvesters, many of which are manufactured by the Dutch company, Ploeger. These harvesters have an enclosed driver's cab complete with air conditioning and a noax industrial PC, which the food processor needs to record harvesting data out in the field and send this information back to the factory. This allows iglo not only to verify that there really is no time at all between harvesting and packaging, but also to

record essential details. Such details include the field number (each field has its own unique identification number), harvesting start and end times, and expected harvest size, which are used by iglo and provided – to some extent – in the store for customers to consider. The consumer packaging includes a code, which customers can enter at iglo.de to reveal exactly where the vegetables in that specific pack were grown. "We're all about transparency here," explains iglo cultivation consultant Oliver Wiegand with clear pride. After all, this is all part of the iglo quality offensive: "Anyone can go down to the fields and take a look at how we harvest the spinach." In addition to its emphasis on product quality, the frozen-food manufacturer also goes to great lengths to ensure natural resources are treated with the utmost care. Accurate soil analyses are carried out to lay the foundations for the fertilization process. iglo actually only applies a minimal amount of fertilizer to each field depending on whether essential nutrients

have been extracted from the soil during the cultivation process. What's more, iglo has an agreement in place with its contracted farmers to state that the fields must be surrounded by a three-meter border of grass and wild flowers. This measure is to ensure that insects and other microbes have sufficient sustenance around the edges of the areas under cultivation. iglo therefore looks after 140 kilometers of these borders in total.

### IPC feedback

Another part of the sustainability concept can be found in the form of the harvesting vehicle. The machine is designed to compress the soil as little as possible, which means it can operate in crab-steering mode, for example, each wheel moves in a different track to keep the pressure on the soil to a minimum. The vehicle also has a variety of other features to protect the soil during harvesting: The cutting



High-tech: The leafy vegetables are gathered using state-of-the-art spinach harvesters. A noax industrial PC in the driver's cab is key to ensuring quality and traceability

*With first-class products in the premium sector, it's hardly surprising that iglo frozen food is one of Germany's best-known brands. And with the highest standards for cultivating and harvesting vegetables, not to mention a vitamin-friendly manufacturing process for maximum taste, iglo really sets the bar for living up to customer expectations. Another company with equally high quality standards is noax, which is why its industrial PCs are the ideal solution for food manufacturer iglo when it comes to meeting requirements right from the harvesting phase.*

*Sustainability: Regular crop rotation, careful soil cultivation, and a diverse range of plants around the edges of the fields preserve the richness of the areas under cultivation*



tool, for example, can be raised so that the driver only cuts the perfect spinach and leaves the rest in the field. As soon as the "spinach bunker" in the harvesting vehicle is full, it is emptied into a transport container. Each container has its own transponder, which receives data from the industrial PC (IPC) to ensure trace-ability. As soon as the spinach leaves arrive in the factory, a sample from each container is taken to the laboratory for thorough testing. "We always check every surface for traces of fertilizer, for example," explains Wiegand. "The fact that there are barely any traces of it means our spinach is even suitable for use in baby food." The accurate data capture in the field means that these results can be applied to every single cultivation area. If the analysis highlights that permissible limits have been exceeded or if the proportion of substandard leaves is too high, then iglo uses the entire harvest from this cultivation area to produce biogas. The harvester drivers also receive the feedback from the laboratory tests on their IPCs inside the cabins. This shows them whether or not they are making the correct assessments with regard to substandard leaves. The software used for these tasks was developed in-house by iglo, making it perfectly suited to the demands of harvesting. Before iglo introduced computer-based data acquisition, the harvester drivers had to record information manually on a piece of paper, which would then be entered into the PC back at the factory. It goes without saying, of course, that this method was prone to errors. This is exactly why iglo developed the IPC data capture process, although it initially relied on a different product. The old devices in the harvesting machines were to be replaced with better ones in 2013.

### Improved maintenance

Wiegand's colleague in the IT department, Thomas Franzen, researched what the market for high-performance industrial PCs had to offer in relation to agricultural vehicles: "We looked online and decided we wanted rugged



*Transparency: The driver records data in the noax IPC, which is also made available to end customers*

industrial PCs as they were what we were used to. As we had decided to purchase a new system, we looked at a range of different devices and quickly noticed that noax industrial PCs offer greater performance than others on the market." Franzen and his colleagues used the noax vehicle terminals for a year alongside their predecessors. More than anything, they wanted to use this opportunity to find out how the industrial PCs would cope during the harvesting season between April and November

when the harvesting machines are in operation for 24 hours a day from Monday to Saturday. "This was one of the reasons behind us choosing noax," explained Thomas Franzen, "as we were so impressed by the performance of the noax industrial PCs." The devices used prior to the noax industrial PCs needed 20 minutes just to start up and would crash all the time. "The first thing drivers notice is whether the PCs run quickly or slowly. And there's nothing they find more annoying than the PC crashing right after they have entered all their data. To be honest, the drivers were never really happy with the old models." All harvesters at the Reken iglo factory have since been fitted with noax C12 industrial PCs from the Compact Series. Franzen comments that the drivers have started providing positive feedback on the new IPCs, "They came to me and said that the noax IPCs run like clockwork and there's simply no comparison with the old machines." And in spite of the intensive 24/6 operation, there have been no problems. But, it's not just the harvester drivers who are noticing the improvement – the staff in the IT department are seeing it, too. The IT professionals were particularly shocked by how low maintenance they are thanks to the USB connection on the front, which allows software updates to be downloaded in no time at all. "What's great," notes Franzen, "is that noax uses standard components in its IPCs. This was yet another reason why noax really appealed to us." noax industrial PCs have been installed in harvesters since 2013 with no notable problems recorded to date during harvesting season. As far as Franzen and Wiegand are concerned, they were right on the money choosing noax.

**"The harvester drivers came to me and said that the noax IPCs run like clockwork."**



## iglo GmbH

### Company Profile:

iglo GmbH produces a wide range of frozen products which are marketed under the iglo umbrella brand. These include fish sticks, burgers, and a variety of vegetable products such as creamed spinach. iglo is one of the best-known brands in the German food market. From its factory in the district of Borken, North Rhine-Westphalia, iglo primarily handles spinach, cabbage, and herbs for sale throughout Europe.

For more information, please visit:  
[www.iglo.de](http://www.iglo.de)

## Specifications and Applications

### Objectives:

- ✓ Improvement of product quality
- ✓ Exact harvesting data capture
- ✓ Seamless traceability from field to store freezers
- ✓ Communication with the harvesting vehicle drivers
- ✓ Increased efficiency when harvesting spinach
- ✓ Improved billing processes with farmers

### IPC Requirements:

- ✓ Use of agricultural vehicles for harvesting
- ✓ Completely sealed construction in accordance with protection class IP65 (NEMA4)
- ✓ Easy-to-read touchscreen display
- ✓ Resistant to shocks and vibrations
- ✓ Protection against dirt and moisture
- ✓ Maximum operational reliability and availability
- ✓ Minimal maintenance and fast service
- ✓ Use of standard components
- ✓ Easy, intuitive operation by employees
- ✓ Use of the GSM mobile radio standard

## Overview of Components

### Hardware:

- Industrial PC Compact C12
- In-house developed noax all-in-one motherboard
- Input: particularly robust touchscreen
- Bright, high-contrast TFT display
- Protection class IP65 (NEMA4)
- Completely sealed, no external fan
- Radio set with GPS

### Software:

- Operating system: Windows 7 Professional (32-bit)
- Application programs: Internally developed GemA software

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### Headquarters

noax Technologies AG  
 Am Forst 6  
 85560 Ebersberg (Germany)  
 Tel. +49 8092 8536-0  
 Fax +49 8092 8536-55

noax Technologies Corporation  
 5265 Parkway Plaza Blvd. Suite 110  
 Charlotte, NC 28217 (USA)  
 Tel. +1 704 992-1606  
 Fax +1 704 992-1712

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