

# Global Food Processor Increases Vegetable Yields, Quality and Processing Efficiency



Irrigated sweet corn and green peas are processed into canned vegetables and marketed throughout Russia under the popular Bonduelle™ brand.

## SUMMARY

Lindsay pivots, laterals and hose reel irrigation systems are helping one of the world's largest vegetable growers and processors increase yields, quality and profitability in the heart of Russia's most productive agricultural region.

The large, modern Lindsay irrigation system is located on the Rogovskaya farm in the Krasnodar region of southern Russia, which is managed by one of the world's largest food processors—the Bonduelle Group™.

Irrigated sweet corn and green peas grown at the 2,300-hectare (5,683-acre) farm are processed into canned vegetables at the nearby Bonduelle

processing facility and marketed throughout Russia and Europe under the popular Bonduelle brand.

## CHALLENGE

In designing a new irrigation system for the Bonduelle farm, a former collective farm or kolkhoze, managers sought to:

- Significantly increase vegetable and sugar beet yields
- Continue and enhance quality of the crops
- Match seed planting to meet processing demands and schedules at the processing facility

- Grow two crops per year on the same field (peas and sweet corn)
- Quickly move the lateral irrigation systems from one part of the field to another because different crops are grown at different times on the farm
- Account for heavy soils in the irrigation system design and set-up

Because of the mild climate and abundant water supply in the Krasnodar region of southern Russia, the farm managers wanted to capitalize on the opportunity to introduce a modern irrigation system on the farm that would not only enable high yields and the

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*Irrigated peas and sweet corn are grown at the farm and often double-cropped.*

ability to “double-crop” peas with sweet corn, but also provide a reliable, steady supply of raw materials for Bonduelle’s vegetable processing facility located in nearby Timashevsk, Russia.

## **SOLUTION**

In 2005, it was decided to involve a French engineering company who made all of the hydraulic calculations for the new irrigation system. The technical data were implemented by the Rostov Project Institute in order to get water use and construction authorizations. Construction of the irrigation system itself started in September 2006 and was completed in three phases (see schematic on opposite page), with the first Lindsay irrigation machine commissioned in May 2007.

Today, approximately 2,300 hectares (5,683 acres) of green peas, sweet corn and sugar beets are irrigated by the following Lindsay products:

- 14 Omega pivoting laterals

- 3 standard laterals
- 16 center pivots
- 2 Perrot® by Lindsay hose reels
- Zimmatic® by Lindsay BASIC control panels

Water from a nearby river is used to supply the pivots.

“In designing and planning the Lindsay system at the farm, it was important that the irrigation complement and provide for a strict crop seeding and delivery plan,” says Damien Cochelin, Lindsay Russia regional manager.

“It was crucial to match harvest and delivery of the peas and sweet corn as closely as possible to the demands and schedules of the processing facility. The Lindsay irrigation system was designed to allow Bonduelle to do that and to process more of the crops locally, which increases the processing facility’s efficiency and profitability.”

Soil at the farm tends to be very heavy so the Lindsay lateral and pivot structures were carefully planned and

designed to avoid compaction.

“The heavy soil puts great demands on the pivot structure, so the strength of the Lindsay equipment is a real advantage. It was also decided to restrict the span length to 45.5 meters (150 feet) to limit the depth of the wheel tracks,” Damien says.

Because different crops or crops at different stages of growth would be grown in the same field, the laterals and pivots needed to be moved quickly from one part of the field to another. The solution was the fast Zimmatic center drive motor. A seven-tower Zimmatic pivot with a 43 rpm motor can complete a circle in under 13 hours, compared to more than 16 hours for a competitive system with a 34 rpm motor—a 27 percent savings.

## **GREEN PEAS**

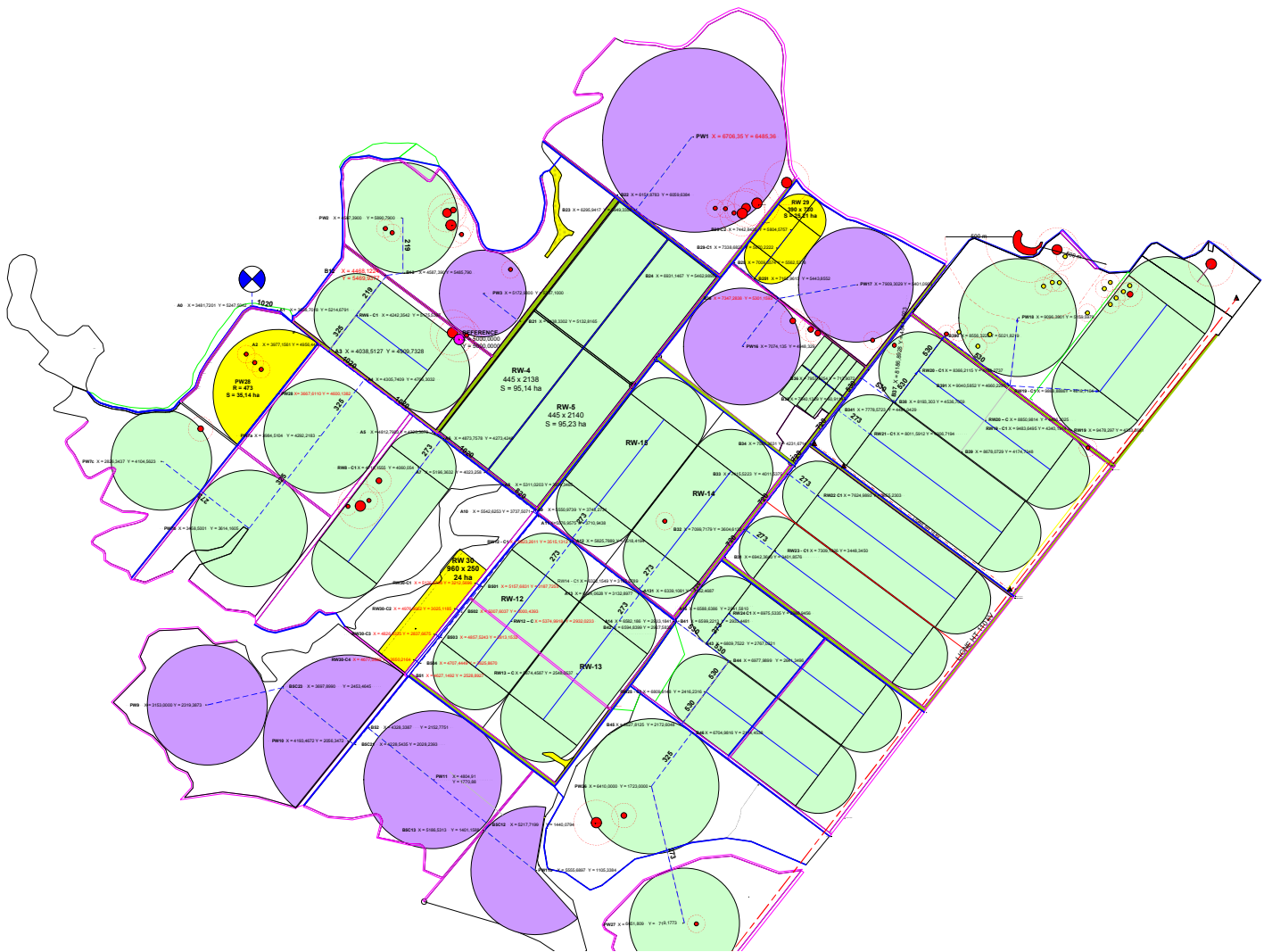
Without irrigation, green peas needed to be planted at the Rogovskaya farm between early March and the end of April. This also meant the peas needed



*The Zimmatic® by Lindsay laterals and pivots were carefully designed not to contribute to soil compaction.*



*Irrigation increases the quality and tenderness of the harvested peas.*



The project was completed in three phases. Green was phase 1, purple phase 2 and yellow phase 3. Pivots and laterals were installed to accommodate existing tree lines and field boundaries on the farm.

to be harvested June 1 through June 25.

Now, with irrigation and careful planning, the peas can be planted through May 10 and the total harvest season extended an additional 10 days. This allows the processing plant to extend the pea canning process by an additional 10 days as well.

Irrigation also increases the quality and tenderness of the peas.

### SWEET CORN

With irrigation, the sweet corn can be planted after the peas are harvested, resulting in a profitable double-cropping system. Irrigation is

used to help the crop emerge and to survive hot, dry spells in the region. It also increases sweet corn quality and moisture content.

Damien says: "Irrigation allows for

**"The farm is able to double-crop the peas and sweet corn..."**

good planning so the farm managers can harvest and deliver so much sweet corn per day to the processing plant. This helps tremendously in scheduling delivery of the product and better matches vegetable processing capacity to supply."

### SUGAR BEETS

In addition to peas and sweet corn, sugar beets are grown at the Rogovskaya farm. Some of the sugar from the beets is used in the vegetable processing and canning operation while the rest of the sugar beets are sold as a commodity.

Lindsay irrigation has resulted in a substantial increase in sugar beet yields, in some cases up to double the dryland yields (see results section).

### RESULTS

By almost any measurement, Lindsay irrigation products have increased yields, quality and efficiency at the Rogovskaya farm.



Irrigation helps provide a reliable, steady supply of raw materials for Bonduelle's vegetable processing facility located in nearby Timashevsk, Russia.

#### FAST FACTS – BONDUELLE GROUP™

- Bonduelle is a family business established in 1853 and today is a world leader in ready-to-use vegetables
- Bonduelle's vegetables are grown on over 115,000 hectares (284,171 acres) and sold in almost 80 countries under a number of different brands
- Over 9,000 employees
- The Timachevsk, Russia, vegetable plant's production capacity is 50,000 metric tons (55,116 U.S. tons) per year

#### ROI SUMMARY

- Green pea crop yields increased from 4 metric tons per hectare (1.79 tons/acre) to 7.3 metric tons per hectare (3.26 tons/acre)
- Sweet corn yields average 17 metric tons per hectare (7.59 tons/acre)
- Sugar beet yields increased from 50 metric tons per hectare (22.32 tons/acre) to 80 metric tons per hectare (35.71 tons/acre)
- Vegetable crop supply and delivery more closely matches processing facility capacity and demand

Yields of peas increased from 4 metric tons per hectare (1.79 tons/acre) to 7.3 metric tons per hectare (3.26 tons/acre).

Previously, sweet corn could not be raised profitably without irrigation. Yields of sweet corn now average 17 metric tons per hectare (7.59 tons/acre).

Sugar beet yields have increased from 50 metric tons per hectare (22.32

tons/acre) to 80 metric tons per hectare (35.71 tons/acre) with irrigation, and on some fields, nearly doubled.

However, perhaps the biggest benefit is the ability to better match crop supply with crop demand at the Bonduelle factory in nearby Timachevsk.

"Thanks to the Lindsay irrigation system, the farm is now able to better

time planting and harvesting and crop delivery schedules," Cochelin says. "The farm is able to double-crop the peas and sweet corn, and able to provide much more and better quality crops to the Bonduelle processing facility."

SOURCE: Lindsay Russia and Lindsay Corp.

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