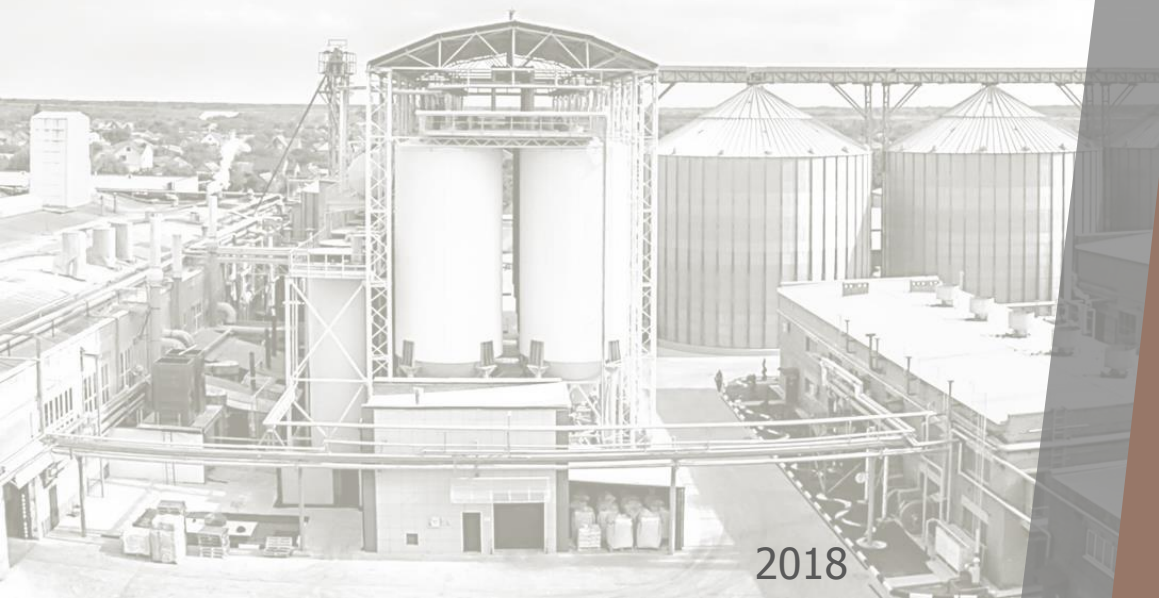




**ГУЛЬКЕВИЧСКИЙ
КРАХМАЛЬНЫЙ
ЗАВОД**

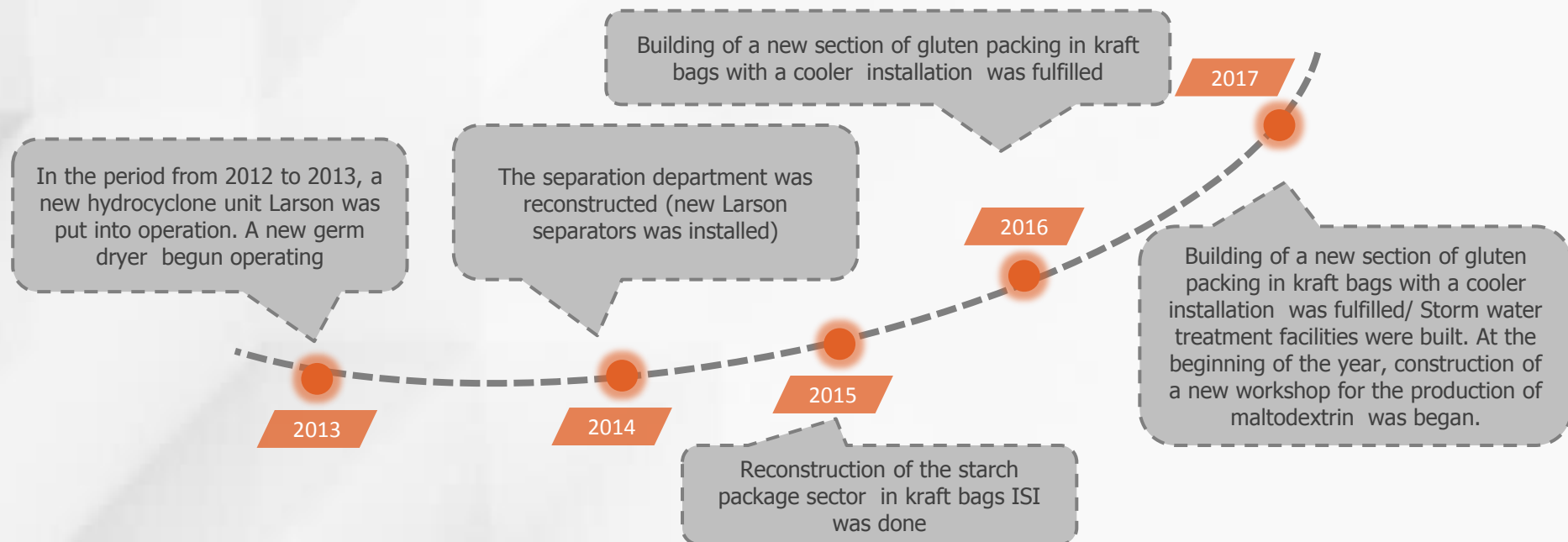
Business Overview

MORE THAN STARCH



2018

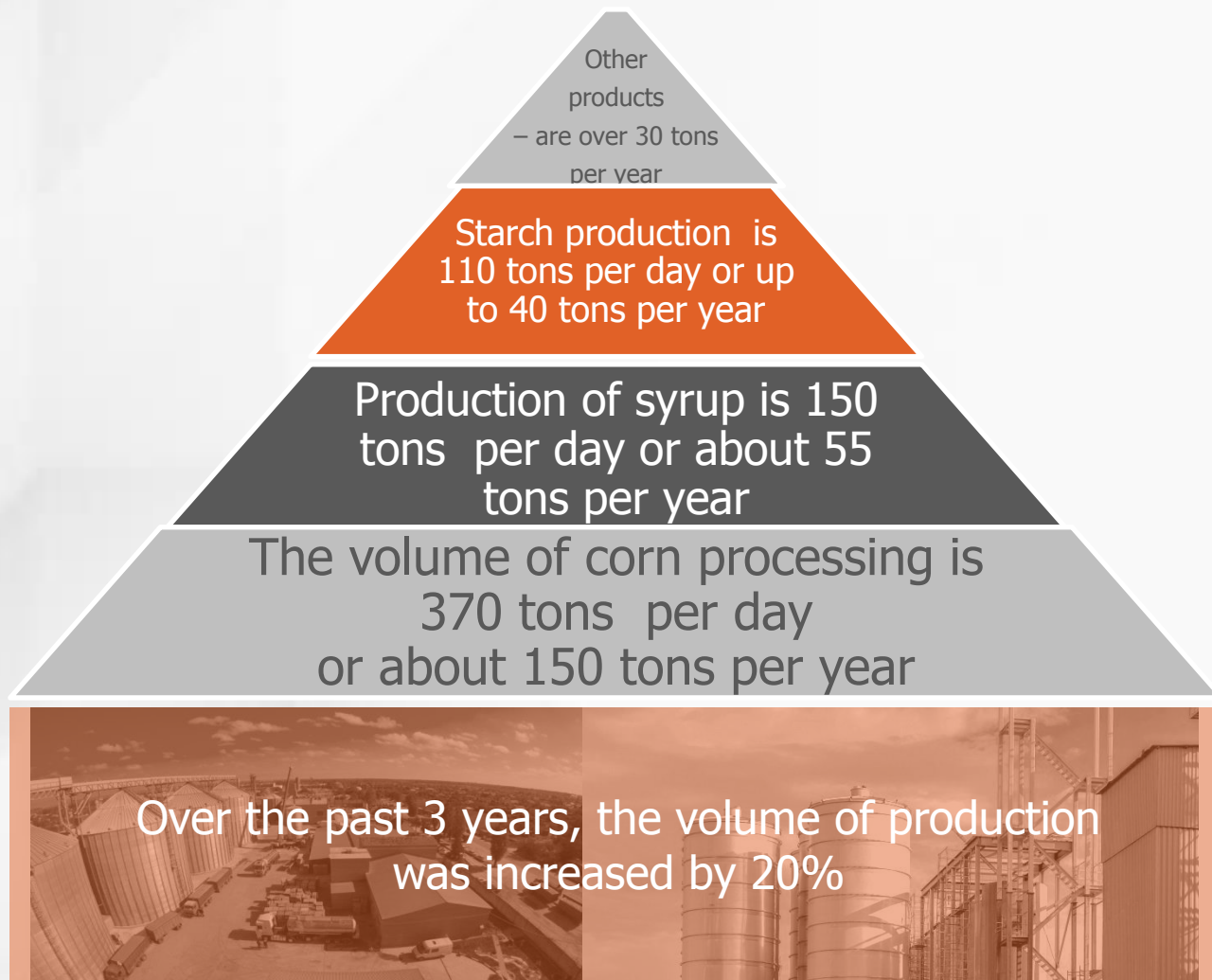
HISTORY OF THE PLANT DEVELOPMENT



Starch plant Gulkevichsky has been presenting more than 15 years on the starch market. During these years, all goals and tasks were achieved and realized:

- production capacity was increased in 3.5 times
- the range of products was doubled
- the plant has been actively developing export sales directions since 2008

PRODUCTION PERFORMANCE



PERFORMANCE INDICATORS

**3d
place**

in the rating of starch products production plants in Russia, 2017.

15%

is total market share of the plant for the production of starch and syrups in Russia, 2017.

**More than
120 000
tons**

is total volume of starch products manufacture of the plant, 2017.

**About
150 000
tons**

is the average annual volume of corn grain processing.

PRODUCTS **RANGE**

BASIC STARCH PRODUCTS

Corn native starch
Syrups
Corn gluten
The germ of the corn wet method of separation
Corn gluten feed
Corn pomace dehydrated
High protein corn bran
Concentrated corn steep liquor

INNOVATIVE STARCH PRODUCTS

NEW

MALTODEXTRIN

In May 2018 Starch Plant Gulkevichsky will be the first who will master industrial maltodextrin production with different index of dextrose equivalent.

NATIVE CORN STARCH

State standard 32159-2013

Starch – is a product which possibilities of the application are infinite: the production of corrugated cardboard, confectionery and bakery production, canning, textile, construction, pharmaceutical and other industries.

ADVANTAGES

- stable production volumes: the plant monthly produces over 3,000 tons of starch;
- constant monitoring of indicators that determine the rheology of the starch, this allows to achieve a stable behavior of starch glue for corrugated cardboard production;
- ability to form lots of starch by qualitative characteristics of the Customer.

QUALITY INDEX

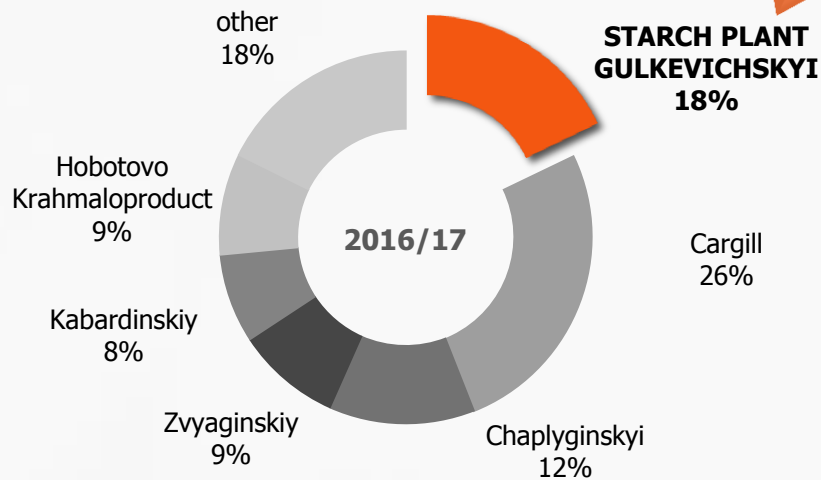
Moisture mass fraction max- 13,0%,

Acidity max- 16,0%

PACKAGING/PACKING

Kraft bags of 25 kg

Big bags of 1000 kg



STARCH SYRUPS

State standard P 33917-2016

Starch syrup is an indispensable ingredient in the production of confectionery and bakery products and also "Oriental sweets", fruit-berry preservation, brewing industry etc.



Confectionery syrup

(DE 36-44)

Used for the manufacture of confectionery products (bread, cakes, caramel, marshmallow).

Increases elasticity and gloss, adds viscosity and intensifies organoleptic parameters, has an optimal viscosity, is used as sweetener, anticrystallizer of confectionery products, improves the commercial properties of ice cream, does not add distortion of a smell unlike sugar.

High-conversion glucose syrup

(DE 45 и >)

Has properties of increased viscosity and therefore it is used in the manufacture of sponge-cake goods, bread baking, preserving fruits and berries, in the manufacture of ice cream.

It has high sweetness, hygroscopicity, fermentability, binding capacity, anticrystallizing ability

Low-conversion glucose syrup

(DE 26-35)

Has properties of increased viscosity. Used in the manufacture of aerated confectionery products, candies.

Used as anticrystallizer, sweet controller, a binder, a foaming agent. Low glucose content can reduce the hygroscopicity of confectionery products and increase their shelf life.

QUALITY INDEX

Dry solid mass fraction, min 78,0%

PACKAGING/PACKING

Metal drums 280 kg (with polyethylene insert)

Plastic containers 30 kg (non-returnable tare)

In bunk till 20 000 kg (tank semi-trailer)

CORN GLUTEN

State standard P 55489-2013

Corn gluten is a valuable product, which is a protein-rich vegetable raw material. It has a sufficient amount of linoleic acid, which positively affects the productivity of animals.



**Corn gluten contains over 55% -60%
of crude protein**

PROPERTIES OF GLUTEN

- high content of methionine and cysteine which are essential amino acids for farm animals and poultry
- source of protein, energy and digestible fiber
- rich source of such minerals as phosphorus and potassium;
- energy of 1 kg of corn gluten is equivalent to 7 kg of corn, and the protein is equal to 1 kg of fishmeal
- a high concentration of carotenoids and natural pigment xanthophyll, which allows to achieve a rich yellow color of egg yolk and also imparts to a Golden-yellow color of a carcass cover.

QUALITY INDEX

Crude protein mass fraction on the dried basis, min 55,0%

Crude fat mass fraction on the dried basis, max 9,0%

SPHERES OF APPLICATION

- as a component of corn feed
- as a protein additive in the diet of agricultural animals and poultry
- in production of animal feed
- as a protein-vitamin additives and premixes filler

PACKAGING/PACKING

Kraft bags of 25 kg

Big bags of 900 kg

FEED STUFF

The main feed stuff and by-products of starch plant:

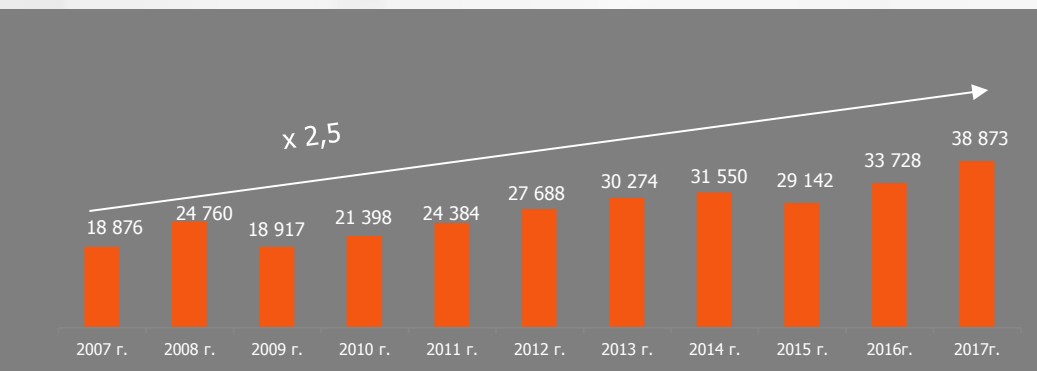
Wet milling corn germ
Corn gluten feed
Corn pomace dehydrated
High protein corn bran
Corn bran
Concentrated corn steep liquor.



Index	Wet milling corn germ	Corn gluten feed	Corn pomace dehydrated	High protein corn bran	Corn bran	Concentrated corn steep liquor
Appearance	Without mold and caked clods, symptoms of selfignition	Middling or granules	Wet friable mass	Middling or granules	Middling or granules	Thick nontransparent liquid, separates into layers, become pastelikeunder cooling
Color	From yellow to grey-yellow or to light-brown	From yellow-grey to dark-brown	Light- yellow. Grayish tint is allowed	From yellow-grey to dark-brown	From yellow-grey to dark-brown	From yellow todark-brown
moisture mass fraction%, max	5,0	14,0	65,0	14,0	14,0	
Crude protein mass fraction on the dried basis, min		18,0		16,0	9,0	35,0
Crude fat mass fraction on the dried basis, %	Min 45,0	Max 5,0		Max 5,0	Max 5,0	
Packaging/packing	In bulk	In bulk Big bags 1000 kg	In bulk	In bulk Big bags 1000 kg	In bulk Big bags 1000 kg	In bulk Drums 200 kg Plastic containers 20 kg

PRODUCTION DYNAMICS

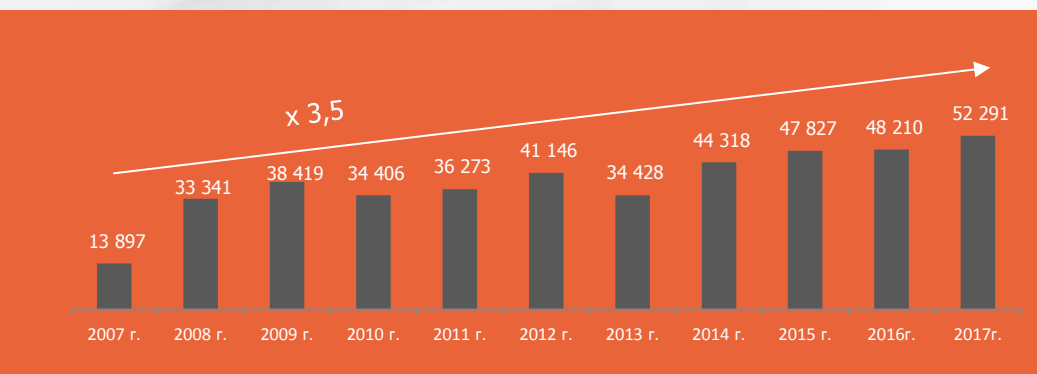
NATIVE CORN STARCH



Rating among the
manufacturing plants by
production volume, 2017



STARCH SYRUPS



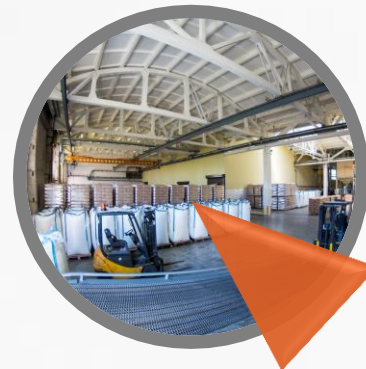
WHAT'S THE REASONS TO CHOOSE US



**MODERN
PRODUCTION**



**PROXIMITY OF
RAW
MATERIAL
BASE**



**EXISTENCE OF
OWN MOTOR
AND RAILWAY
TRANSPORT**



**UNIQUE
TECHNOLOGIES-
WAREHOUSE ON
RADIO-SHUTTLE
TYPE**

OUR ADVANTAGES AND **UNIQUENESS**



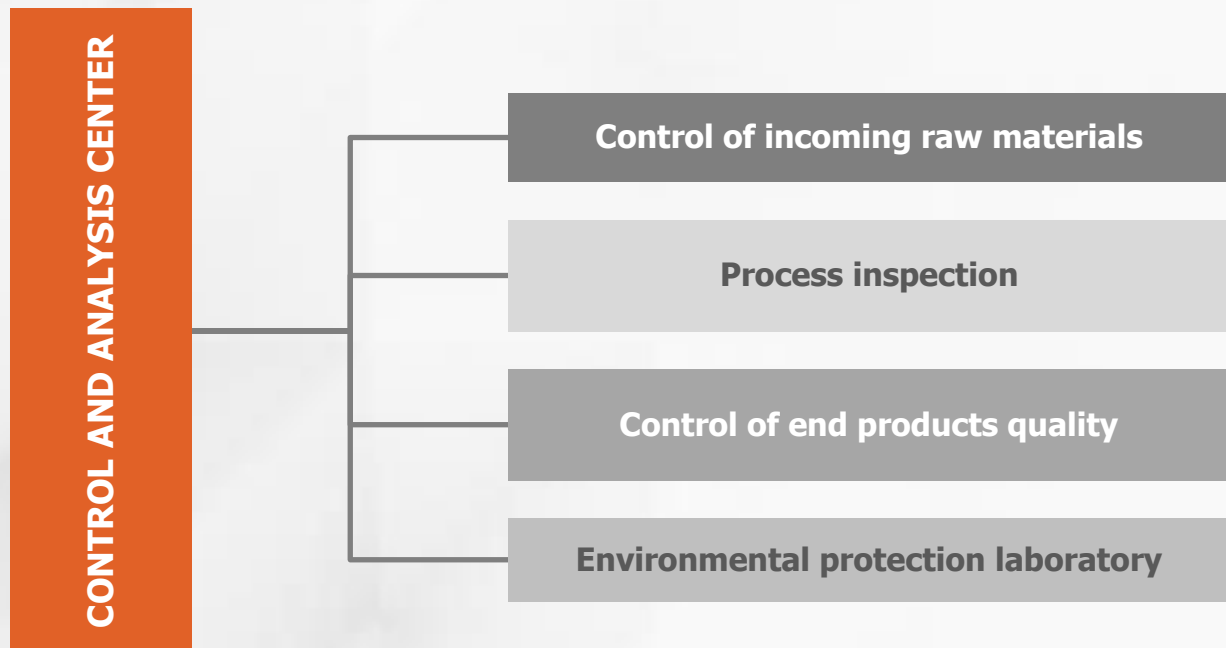
1,8 mil. tons

Corn is grown within a radius of 200 kilometers from the Starch Plant Gulkevichsky, it provides factory with leadership in direct operating expenses.

Starch Plant Gulkevichsky is located in the area of growing 50% of corn from the total volume of its production in Russia, which gives a unique opportunity to purchase raw material with competitive prices.

WHAT IS CAC?

CAC- is control and analysis center, realizing constant monitoring in four main directions: control of incoming raw materials, process inspection at all stages, quality and safety control of end products and environmental control of all production cycles in the enterprise as a whole.



Laboratory control at all stages of production - guarantee of consistently high quality manufactured products.

APPLICATION SERVICE

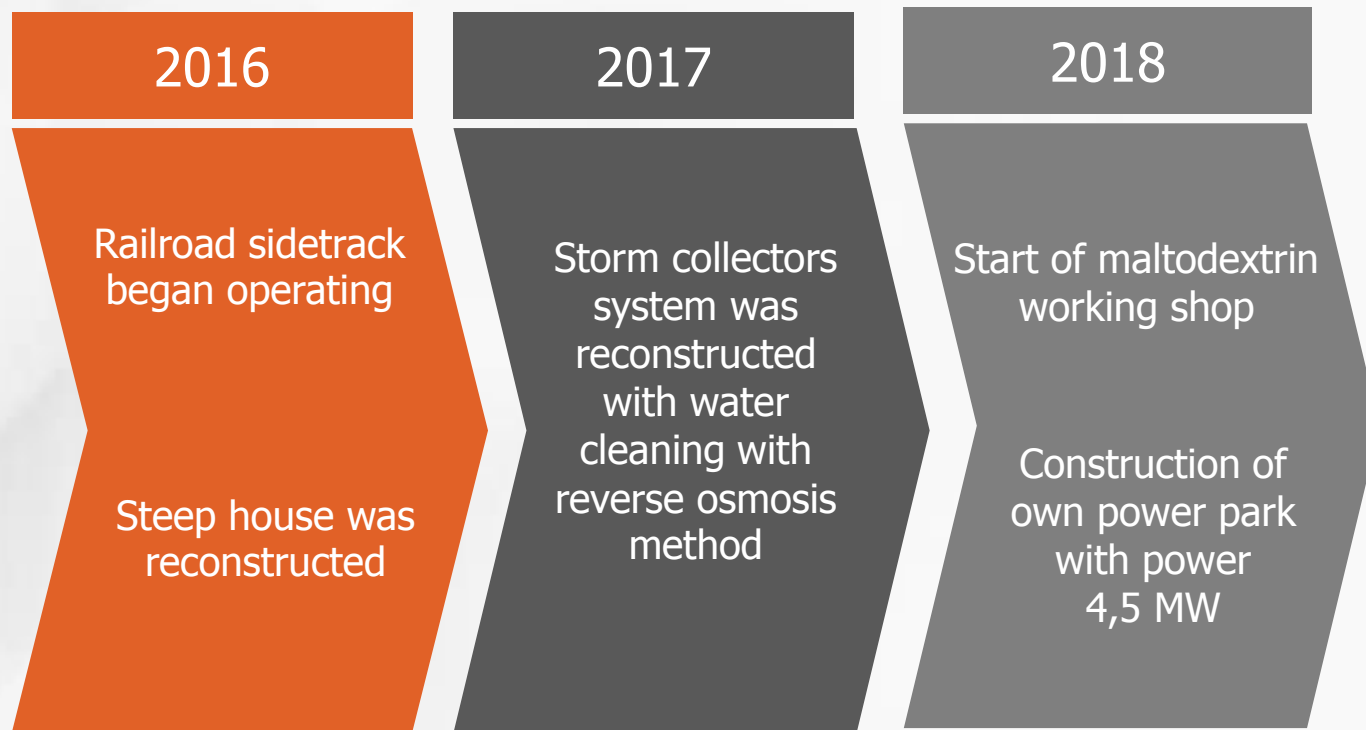
We understand our responsibility and we have created service for application and technological support to arrange the most comfortable conditions of starch and syrup consumption for our client.



We provide qualified assistance on the introduction of all types of produced starch products at the Consumer enterprise.

Lapin.a@kzg.ru

COMPLETED PROJECTS



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