



SORGHUM,
A KEY TO BUILD
OUR FUTURE.



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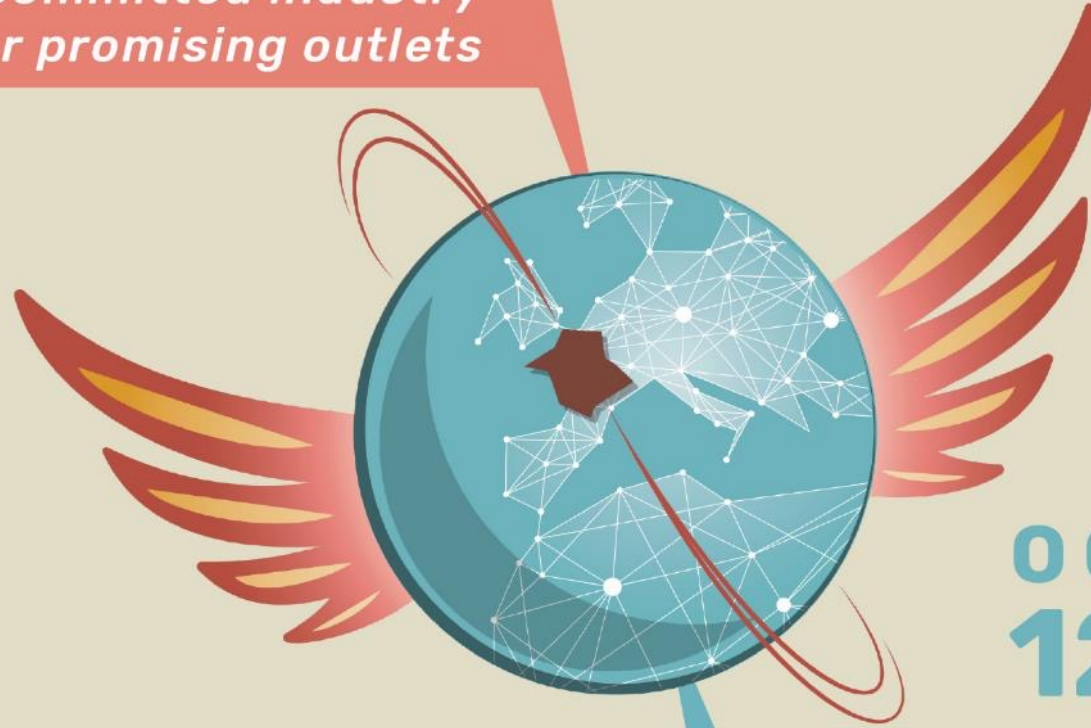


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3RD EUROPEAN SORGHUM CONGRESS

THE SORGHUM

*A committed industry
for promising outlets*



**OCTOBER
12TH & 13TH**

T O U L O U S E

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WORKSHOP PROCESSING INDUSTRY



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Producing Ethanol and Vodka in Moldova: Technical process and sorghum chain built at level of country and local farmer/factory ZERNOFF



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ZERNOFF VODKA

SEVEN TIMES FILTRATION,
a slow mash, rapid fermentation,
give a perfect start for production
of HIGH QUALITY VODKA



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ZERNOFF VODKA

Quality of the products produced by the enterprise under trade mark ZERNOFF is monitored by the team of highly qualified specialists working under Management System ISO 9001:2015 and by the own accredited laboratory.



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Sorghum

Sorghum, also sometimes referred to as Sorghum bicolor - the right grain for ethanol/vodka production.

The use of sorghum in the ethanol production has grown rapidly in recent years, and approximately 30% of the sorghum produced in Europe now goes into ethanol production.

It has been an important food source for centuries. This annual plant produces high yields and is resistant to high temperatures and drought.

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ZERNOFF group

Grains are round 65% of Our Group of companies total spent (and as size, sorghum is a piece of this). As we grow the demand for ethanol, we grow the demand for sorghum.

ZERNOFF Group use of sorghum:

- Bakery and confectionery production
- Animal feed production
- Ethanol production
- Alcoholic beverages production



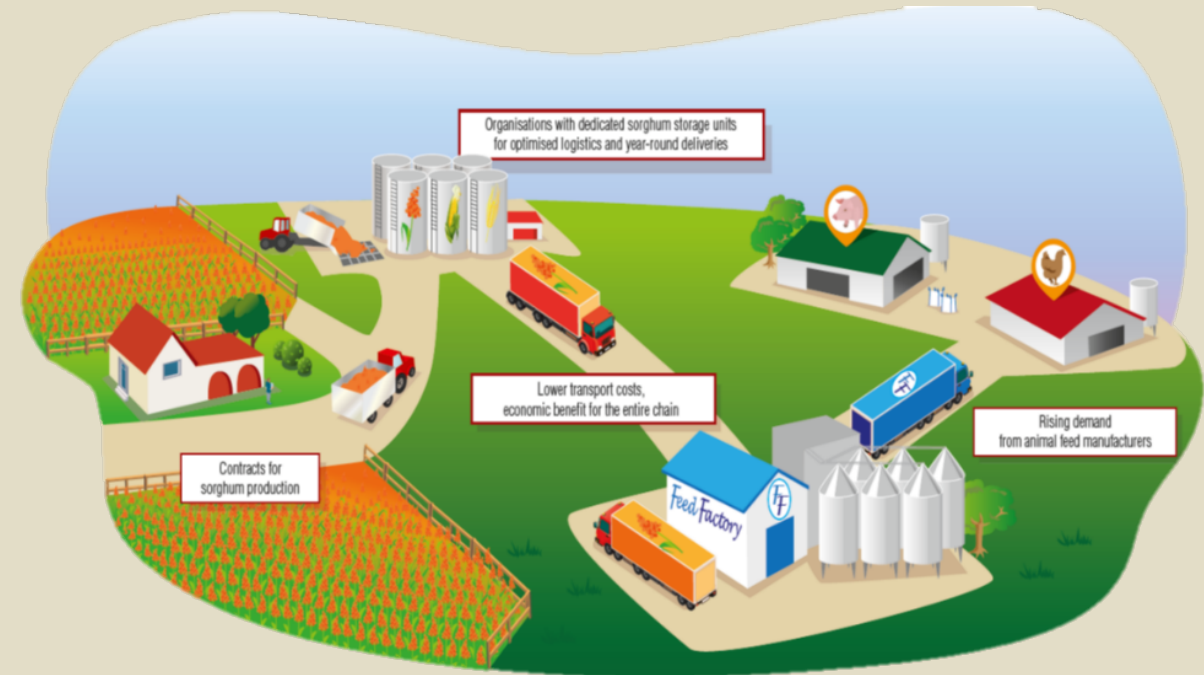
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Chain organization

Sorghum chain, built at level of country and local farmer/factory. Zernoff sorghum need is around 250 K tones per year, therefore sorghum chain organization was strategic issue.

Our transformation chain consists of:

- Seeds and protection distributors
- Farmers
- Logistics companies
- Storage companies
- Sorghum processors
- Animal feed producers
- Ethanol producers
- Bakeries





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Ethanol production

Zernoff ethanol is obtained after a complex process of selecting the grains, mashing, fermenting and distilling the mixture to obtain a high-grade product.

As a result of grain processing, three main products are obtained: ethanol, high protein feed product (DDGS), carbon dioxide (CO₂).

ZERNOFF produces 3,000,000 litres of ethanol per month, 2,400 tons of DDGS and 450 tons of CO₂, thus it is one of the largest plants in the Black Sea region.





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Sorghum is the very CROP.

Ethanol is produced by breaking down the starch in the sorghum grain to create sugars, and then fermenting the sugars. 1 tonne of sorghum grain can produce up to 400 liters of ethanol.

CROP	Quantity	Ethanol yield
Wheat	1 tonne	340 – 360 litres
Corn	1 tonne	370 – 390 litres
Sorghum	1 tonne	390 – 410 litres





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Dried Distillers Grains with Soluble, Sorghum DDGS a co-product of starch-based ethanol production, tend to be lower in fat and higher in protein than corn DDGS.

Parameter	Wheat	Corn	Sorghum
Crude Protein(Nx6.25), %	29.47	26.00	29.92
Crude fat content, %	5.71	10.62	11.99
Crude fiber content, %	7.81	5.64	5.24
Crude ash content, %	3.71	4.01	4.18





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Pharmaceutical industry.

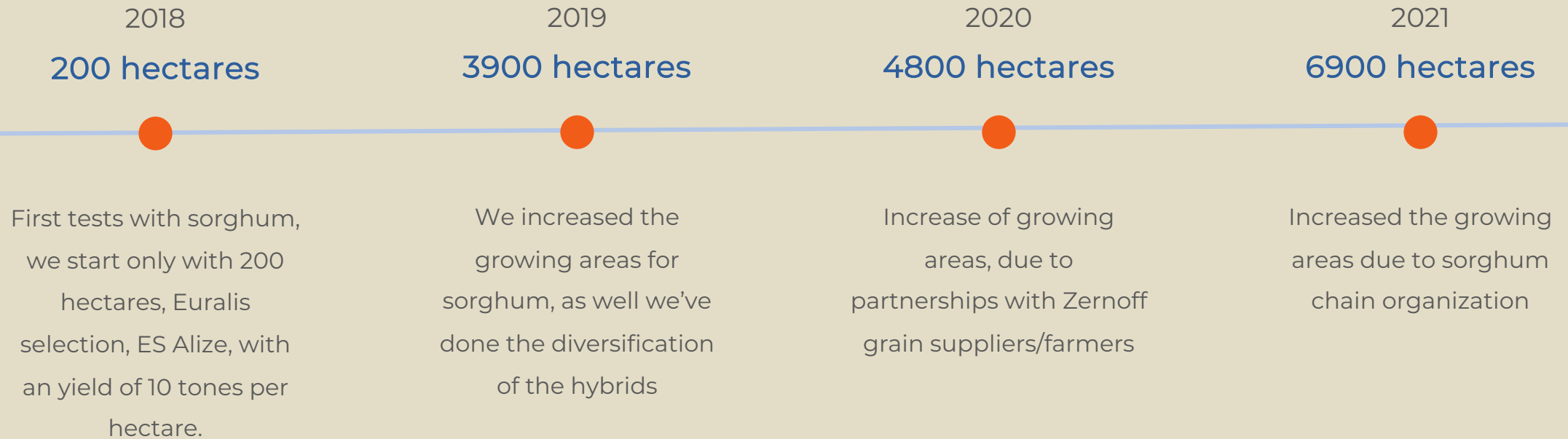
Zernoff obtains ethyl alcohol from wheat, corn and sorghum. 6 distillation columns, 3 of which are designed exclusively for the extraction of fusel oils, ethers and methanol, make it possible to obtain food alcohol of excellent quality with an absolutely neutral smell and taste.

Comparative analysis of the methanol content in alcohol		
Alcohol LUX (ZERNOFF)	0.0006 %	
Alcohol ALPHA (Russia)	0.0030 %	5 times higher
Alcohol Pshenichnaya Sleza (Ukraine)	0.0050 %	8 times higher



Our Farms, Our Heart

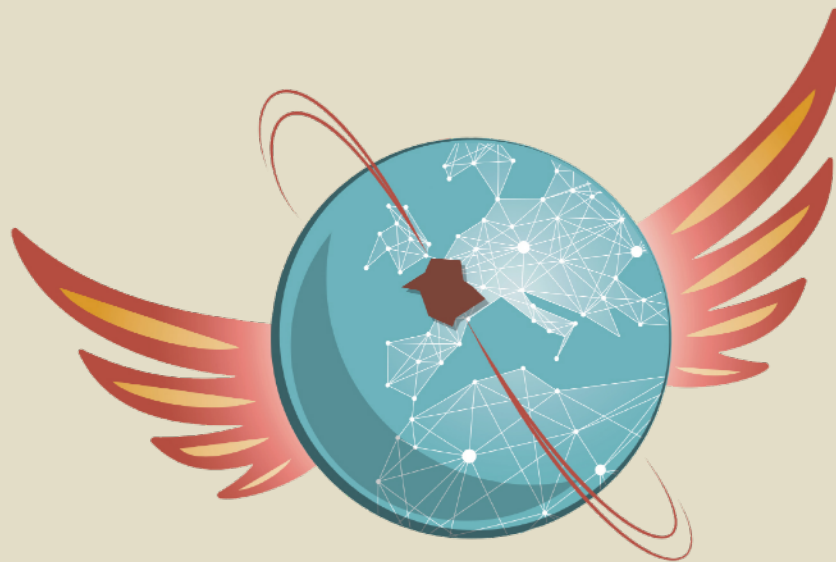
We use only high quality grains grown on the fertile lands of the northern part of sunny Moldova. Properly grown and well-fertilized crops are ideally suited for the production of ethanol.





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Thank you



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