Special Report

The newest feed production technology from rice husk

Technology | Advantages | Tests | Results | Certificates

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Tasks of feed mills

Mixed feed production is a very complex and dynamic business, which in world is of great importance, where the annual production of feed exceeds 1.103 billion tons. With such a level of competition, it is important to quickly respond to changes in the market and fluctuations in demand, as well as to promptly introduce new technologies and offer customers the best solutions.

* It should also be borne in mind that some feed mills have a closed production cycle - from the production of feed to the cultivation and slaughter of animals and the subsequent sale of final products (meat, milk, eggs, etc.).

Therefore, feed mills have to solve several urgent problems at once:

- Optimization of financial burden. Reduced costs. Including, decrease in costs for the maintenance of own animals.
- Increase in net profit compared to industry average.
- Effective control of market operational risks caused by animal epidemic diseases, supply and demand imbalances.
- Expanding the product range and offering more products.
- Increased feed sales.
- Creating a flexible formulation that can be adjusted in the event of fluctuations in prices for raw materials and changes in demand.
- · Modernization of own technologies.

In this regard, the company Natural Ventures offers you to get acquainted with the results of research of the latest developments in the field of animal feed production called CBFeed.

CBFeed is a technology for the production of <u>complete feed</u> from rice husks, processed biologically and has many advantages.

On the following pages, you will be able to get acquainted with the results of research on a new technology.

What is CBFeed?

- Production technology of inexpensive rice husk feed.
- CBFeed aims to optimize the use of financial resources by reducing the cost of purchasing expensive grain raw materials for feed production.
- The nutritional value of CBFeed is 0.48 feed units (FU).
- CBFeed is safe for animals and people meets the quality standards of Uzbekistan. Also, tests were carried out in Japan, which confirmed that CBFeed is safe for animals and people (for more details, see p. 7)
- Effective feed.
 - As a result of the experiment on feeding and further hardening of bulls, it was established that CBFeed is well absorbed (for more details see page 7).
 - As a result of an experiment on feeding cows and examining milk, it has been established that CBFeed has a positive effect on increasing the fat content of milk (for more details, see page 8).
 - As a result of the broiler feeding experiment, it was found that the CBFeed technology contributes to the assimilation of the main feed and helps to save on the broiler diet while maintaining a stable positive dynamics of weight gain during the specified period (for more, see page 12)

CBFeed Production Technology

- 1. Chopping rice husk
- 2. Mixing
- 3. Biological treatment
- 4. Granulation

Composition

Name of Analysis	(%)
Humidity	12,2
Ash	13,9
Crude nitrogen	1,14
Protein	6,8
Fat	1,0
Fibre	35,1
NFET	31
Feed Unit	0,48
Calcium	0,2
Phosphorus	0,29
Acidity	6
Toxicity	Non-toxic

Advantages of technology CBFeed

- Low cost of production of CBFeed feed. This is possible due to the low price of raw materials (raw rice husks) in world \$ 20-50 per ton.
- The wide availability of raw rice husks in world is more than 797 million tons per year.
- Efficiency. CBFeed helps to assimilate the main feed and helps the animal gain weight.
- **Security.** Tests on bulls, broilers and laying hens have confirmed that CBFeed is well digested and safe for animals and people (for more details, see page 7).
- The optimal investment in the launch of production (for animal feed factories).
 Standard equipment for the production of animal feed at 30-50% covers technical requirements in the production of feed from rice husk using CBFeed technology (for more, see page 7).
- Flexibility. CBFeed technology can be adapted to changing market needs.

Laboratory tests (bulls, cows and broilers)

The results of research on the bulls (August – September 2017)

What did we want to know?

- Digestibility and consumption
- Feed safety for animals and people

How was the experiment hold?

- 1. We took bulls age 12-14 months. Vaccinated and numbered them.
- 2. Checked the chemical indicators of feed, which were part of the daily diet of these bulls.
- 3. Spent control weighing.
- 4. Established round-the-clock video surveillance of animals (you can request videos of the test see our contacts on page 20)
- 5. All animals participating in the experiment received 7.2 feed units per day.
- 6. After completing the experiment, we conducted the slaughter of animals and further study of their viscera for digestibility and safety (both for animals and for humans).

Feeding Ration

- 1. All animals participating in the experiment received a daily ration of four products.
 - a. Three products were the same for all test animals hay, clover, and meal.
 - b. The fourth product was different:
 - i. wheat;
 - ii. raw rice husk;
 - iii. raw rice husk + raw rice bran;
 - iv. raw rice husk and raw meal after biological treatment using CBFeed technology:
 - v. raw rice husks after biological treatment using CBFeed technology.
- 2. For each product, the Republican Veterinary Laboratory of Uzbekistan established feed units so that the daily ration does not exceed the established 7.2 feed units per day (see the official results of the study of feed samples in Appendix No1)
 - a. 1 kg. wheat 1,05 FU
 - b. 1 kg. meal 0,72 FU
 - c. 1 kg. CBFeed 0,48 FU
 - d. 1 kg. rice bran 1,1 FU
 - e. 1 kg. hay 0,22 FU
 - f. 1 kg. clover 0,6 FU

	Ration								
№ of Bull- calves	Hay	Clover	Meal	Wheat	Husk	lusk Husk+Screenings CBFeed 1 (biologi processed rice husk+bran)		CBFeed (biological processed rice husk)	
3614	3,60	3,90	0,75	xxx	5,16	xxx	xxx xxx		
3676	3,60	3,90	0,75	xxx	XXX	2,95	xxx	xxx	
3695	3,60	3,90	0,75	xxx	XXX	xxx	3,00	xxx	
3613	3,60	3,90	0,75	xxx	XXX	xxx	3,00	xxx	
3680	3,60	3,90	0,75	xxx	XXX	xxx	xxx	4,73	
3649	3,60	3,90	0,75	xxx	xxx	xxx	xxx xxx		
3628	3,60	3,90	0,75	2,16	xxx	xxx xxx		xxx	
3689	3,60	3,90	0,75	2,16	xxx	xxx	xxx	xxx	

Results

- After the slaughter and examination of the stomach of the bull №3614, which fed on raw rice husks without biological treatment, signs of incipient peritonitis were revealed.
- After the slaughter and research of the stomachs of bulls №3680 and №3649, which fed
 on rice husks after biological treatment using the CBFeed technology, it was established
 that the animals are completely healthy.
- The meat and entrails of bulls' №3680 and №3649 were thoroughly studied in independent laboratories of the Republic of Uzbekistan (radiology, biochemistry, physical and chemical composition). Test results confirm that CBFeed is completely safe for animals and people.

Conclusions

- Feed CBFeed is well digested.
- Unlike raw rice husks without biological treatment, CBFeed feed is safe for animals and humans.

We also offer to your attention the opinion of experts

- Appendix №2 The conclusion after the slaughter of the cow №3614 (feed raw rice husk without biological treatment)
- Appendix №3 Conclusion after the slaughter of the cow №3649 (CBFeed feed)
- **Appendix** №4 and №5 The results of laboratory tests CBFeed in Japan, where experts have confirmed that the feed is absolutely safe for people and animals.

All the above-mentioned documents confirm the effectiveness and safety of the CBFeed technology.

The results of studies on cows (August 2017)

What did we want to know?

The effect of CBFeed feed on milk fat.

How was experiment hold?

- We numbered the cows that participated in the experiment.
- We gave the cows a standard diet and continued to measure periodically the fat content of milk.
- Then we introduced CBFeed feed into the diet and measured milk fat content three times over 9 days (August 22-29-31, 2017)

Results

• Milk fat in test cows increased from 3.5% to 5.2% during the reporting period.

Conclusion

• Feed from rice husk after biological treatment according to CBFeed technology favorably influences an increase in milk fat content in cows.

We also offer to your attention the opinion of experts

 Appendix №6 – The results of tests on cows (August 2017) in order to find out the effect of CBFeed feed on milk fat.

Intermediate results of research on broilers (March – April 2019)

What did we want to know?

- Effect of CBFeed feed on broilers at different feeding times (Start, Growth and Finish).
- Set the minimum and maximum value for effective use of CBFeed feed as a replacement for popular and more expensive feed types.
- Establish the effect of feed on broilers and on the final product (meat) by staking broilers from the control group and checking for proteins, carbohydrates, and taste.

How was experiment hold?

- All broilers (ROSS 308 cross) participating in the experiment (1050 chicks in total) were weighed and numbered into groups.
- We divided the broilers into 21 groups:
 - 19 groups receive CBFeed at a rate of 2.5% to 50% of the total diet at the Start, Growth and Finish stages.
 - o 2 control groups eat only standard feed.
 - Indicators of standard feed for broilers:

At the same time, we do not add CBFeed to the main feed, but replace CBFeed in the indicated percentages.

For example: to prepare 20% feed (group No. 7), we brought 100 kg ready feed, then removed 20 kg of full feed from it and added 20 kg CBFeed. That is, in the feed for group 7, from the very beginning there were less vitamins, minerals, etc.

At the same time, broilers of all groups remained healthy and gained weight.

Broiler Feeding Table

Nº Cagos	Name of group	Number of broilers	1-7 days	8-18 days	19-30 days	31-45 days
Cages		Di Oliei S	Pre-Start	Start	Growth	Finish
1	C-2,5;P-2,5;Ф-2,5.	50	0%	2,50%	2,50%	2,50%
2	C-5	50	0%	5%	40%	40%
3	K-1	50	0%	0%	0%	0%
4	С-30;Р-30;Ф-30.	50	0%	30%	50%	40%
5	С-40;Р-40;Ф-40.	50	0%	40%	0%	40%
6	C-50;P-50;Ф-50.	50	0%	50%	0%	40%
7	C-20;P-20;Ф-20.	50	0%	20%	20%	20%
8	С-15;Р-15;Ф-15.	50	0%	15%	15%	15%
9	Ф-15	50	0%	0%		15%
10	P-15	50	0%	0%	15%	0%
11	C-15	50	0%	15%	0%	10%
12	С-9;P-12;Ф-15.	50	0%	9%	12%	15%
13	K-2	50	0%	0%	0%	0%
14	С-3;P-6;Ф-9.	50	0%	3,00%	6,00%	9,00%
15	С-10;Р-10;Ф-10.	50	0%	10%	10%	10%
16	Ф-10	50	0%	0%	40%	40%
17	P-10	50	0%	0%	10%	10%
18	C-10	50	0%	10%	0%	10%
19	Φ-5	50	0%	0%	40%	40%
20	С-5;P-5;Ф-5.	50	0%	5%	5%	5%
21	P-5	50	0%	0%	5%	15%

- The temperature was monitored every day.
- Every day the weight of broilers was recorded in all groups.
- Control measurements were carried out with representatives of "SGS".
- At the end of the experiment, broilers from all groups were slaughtered and examined in the SES of the Republic of Uzbekistan and "SGS" for health.
- Analyzes were also carried out on moisture, proteins and carbohydrates.

Summary

- The experiment (duration 45 days) with different percentages of CBFeed feed use showed that CBFeed promotes the absorption of the main feed. This is the opinion of three experts from different feed milling companies that produce feed for broilers and other animals.
- Studies of the SES of the Republic of Uzbekistan and "SGS" showed that broiler meat at the end of the experiment corresponds to the norm.

We also offer to your attention the opinion of experts

- Appendix №7 SGS Study Report №10-0429 / 19
- Appendix №8 Test report №225 SES Republic of Uzbekistan
- Appendix №9 Test reports №645 SES Republic of Uzbekistan
- Appendix №10 Test reports №683 SES Republic of Uzbekistan
- Appendix №11 Test reports №979 SES Republic of Uzbekistan

Conclusion

- The first results point to financial savings in feed for broilers while maintaining the dynamics of weight gain.
- In the next experiment, together with feed mills companies in Uzbekistan, we will develop a new version of CBFeed feed, which will have the efficiency of full-fledged feed (conversion and carcass output) + more attractive price.

The results of studies on broilers (April - May 2019)

Location

 The company "OQDil Max" Tashkent region, Parkentsky district

What did we want to know?

• The effectiveness of feed CBFeed on growing broilers.

How was experiment hold?

- All broilers (cross-country ROSS 308) participating in the experiment (10,000 in all) were weighed and numbered groups.
- The period of the experiment 14.04.19- 16.05.19
- Diet:

Growth - 6 and 9% CBFeed

Finish - 12% CBFeed

Results

- Weight of broilers 3300 gr (44th day)
- Carcass yield 77% (44th day)

Conclusion

• Feed from rice husk after biological treatment using CBFeed technology favorably affects the increase in weight of broilers.

The results of studies on cows (March 27 – June 1, 2019)

What did want to know?

• The effectiveness of CBFeed feed on cows' weight and other indicators (fat, SOMO, protein, etc.) of cow's milk.

How was experiment held?

• Four Goldstein cows were acquired and numbered as follows:

1578 | 1581 | 1584 | 1582

- The period of experiment 27.03.2019 24.04.2019
- Analyzes were held daily
- The first month of feeding took place on the following diet:
 - clover
 - hay
 - bran
 - compound animal feed for cows
- Tests were conducted on the indicators (fat, density, protein, MSNF)
- The period of experiment **24.04.2019 15.05.2019**
- 50% of feed was replaced by CBFeeD, while CBFeeD accounted for 30% of the total diet.
- Tests were conducted on the indicators (fat, density, protein, MSNF)
- Result:

The quality and quantity of feed remained the same, and the energy value of feed per day decreased by 15%.

- The period of experiment 15.05.2019 01.06.2019
- CBFeeD accounted for 50% of the total diet.
- Tests were conducted on the indicators (fat, density, protein, MSNF)
- Results:

The amount of feed eaten increased by 15%, but the total price of feed per day did not change.

In connection with the above, when feeding cows within <u>50%</u> of the total diet per day, cows increase **fat**, **protein** and **MSNF**, which has a beneficial effect on the final price of the finished product.

Daily analyzes of fat content, density, protein and MSNF milk by feeding periods

• The period of receipt of milk tests 13.04.2019 - 23.04.2019

Nº of cows	Fat (%)	Density	Protein (%)	MSNF (%)
1578	3.40	1 029.14	3.14	8.50
1581	2.80	1 028.47	3.02	8.19
1584	2.80	1 029.14	3.08	8.35
1582	2.89	1 029.03	3.08	8.36

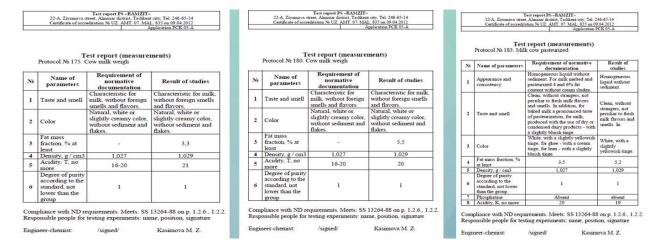
The period of receipt of milk tests 30.04.2019 – 10.05.2019.

Nº of cows	Fat (%)	Density	Protein (%)	MSNF (%)
1578	3.60	1 028.49	3.10	8.37
1581	2.90	1 028.32	3.01	8.17
1584	3.03	1 028.10	3.03	8.22
1582	3.07	1 028.40	2.90	8.20

The period of receipt of milk tests 20.05.2019 – 30.05.2019

Nº of cows	Fat (%)	Density	Protein (%)	MSNF (%)
1578	4.10	1 029.97	3.27	8.82
1581	3.11	1 028.60	3.06	8.29
1584	3.35	1 028.23	3.09	8.36
1582	3.17	1 028.80	3.08	8.36

According to the results of the experiment in 2017, the fat content of milk in the tested cows increased, showing 5.2% - 5.5%, as shown at the presentation of CBFeeD. In addition, in the experiments conducted in 2019, the level of milk fat showed an increase of up to 4.1%.



The difference between the results of experiments in two periods depends on the conditions and place of the experiment. On this occasion, it is planned to conduct an experiment in a dairy farm, advising international standards.

The results of studies on turkeys (March – June 2019)

What did we want to know?

• The effectiveness of feed CBFeed on weight turkey chickens.

How was experiment hold?

• One monthly 42 turkey chicks of the cross "BIG-6" were purchased and divided into 6 groups of 7 pieces each and rations were set accordingly:

	Percentage of adding CBFeeD						
Nº	Initial solution	In practice					
1	0%	0%					
2	3-9-15%	10%					
3	10%	15%					
4	15%	20%					
5	20%	30%					
6	30%	40%					

Preparing feed for these groups was as in the example as follows:

Nº	Percentage of adding CBFeeD	Compound feed (g)	CBFeeD (g)
1	0%	10 000	0
2	10%	9 000	1 000
3	15%	8 500	1 500
4	20%	8 000	2 000
5	30%	7 000	3 000
6	40%	6 000	4 000

Compound feed

A complete feed consists of the following components
in different proportions
Wheat
Corn
Wheat ban
Soybean meal 46%
Sunflower meal 30%
Sunflower oil
Lysine Monochlorohydr
DL-Methionine 98%
L-Threonine 98%
Salt
Mono Calcium Phosphate
Lime flour
Sodium sulfate
Enzymes
Vitamin B4 60%
Bacitracin
Lemon acid

Premix P1-2
OE layers kcal / 100g
Crude protein, %
Crude Fiber, %

- The turkeys were weighed at the beginning of the experiment on 03/23/2019 and 04/04/2019, 13/04/2019, 07/05/2019 under the supervision of a representative of SGS.
- With such feeding, there was no natural death, although several turkeys were slaughtered for analysis during the experiment.
- When controlling weighings indicators were as follows:

Nº	Name of the group	CBFeeD	Number of turkey chicken on 23.03.19	Net weight, gr. on 23.03.19 (average for 1 pcs)	Number of turkey chicken on 04.04.19	(avorago	Number of turkey chicken on 13.04.19	Net weight, gr. on 13.04.19 (average for 1 pcs)	Number of turkey chicken on 07.05.19	Net weight, gr. on 07.05.19 (average for 1 pcs)
1	K-1	0%	7	822,86	7	1478,57	5	2116,00	4	3535,00
2	C-3;P-9;Ф-15	3-9-15%	7	1225,71	7	1692,86	7	2187,43	7	3789,29
3	С-10;Р-10;Ф-10	10%	7	1054,29	7	1867,14	7	2543,71	6	4545,83
4	C-15;P-15;Ф-15	15%	7	1080,00	7	1761,43	7	2249,71	7	3988,57
5	C-20;P-20;Ф-20	20%	7	1225,71	7	2088,57	7	2641,71	6	4213,33
6	C-30;P-30;Ф-30	30%	7	1464,29	7	2365,00	7	2959,43	7	5020,00

Original document of «SGS» file can be obtained through the link.

Conclusion

There is the possibility of feeding these types of turkeys with feed up to 40%. At the same time, the weight gain of the turkeys remains very good.

It was decided from June 11, 2019, to raise turkeys in separate groups with the addition of 15% - 25% - 50% CBFeeD to the diet. The results of this experiment will be reported in the upcoming reports.

Financial profitability of CBFeed technology

Then you can see the difference in the cost of grain, which is used as the main raw material for the manufacture of animal feed.



The cost of rice husk is several times cheaper than other types of grain crops, which serve as the basis for the production of animal feed.

Previously rice husk was not considered as a raw material for the manufacture of feed due to poor digestibility. However, thanks to CBFeed's biological processing, rice husks are transformed into safe animal feed.

If we talk about the cost of the final product, the price of CBFeed is much lower than with most popular animal feeds.

The low price of rice husk makes CBFeed fodder beneficial for keeping animals on their own farms, as well as for external sales to outside farmers who are interested in low-priced products.

The cost of starting production of feed technology CBFeed

Unfortunately, at this stage we cannot reveal all the details. However, in our experience we can say that the standard equipment of feed mills (with a production capacity of 50 tons per day) covers the technical requirements for the production of CBFeed by 30-50%.

The total average cost of investment in the purchase of equipment for the plant for the production of animal feed with a capacity of 50 tons per day is about \$ 1.2 million. In turn, for existing plants for the production of animal feed (with a capacity of 50 tons per day), starting the production line costs 30-50% cheaper.

You can learn **technical details on the launch and operation of the CBFeed production line** from our email technical specialist at <u>info@cbfeed.uz</u> and by phone at – 998 90 9410608.

In addition, our experts will help you to predict the cost of the final product, taking into account your technical and logistic features.

Additional information about CBFeed technology

At the moment, we are continuing to conduct CBFeed feed testing on bulls, cows, sheep, laying hens, broilers, turkeys and fish.

The results of the first tests on broilers can be found on pages 11 and 12.

Our goal is to set the minimum and maximum value for the effective use of CBFeed feed as a replacement for popular and more expensive types of feed. Moreover, to establish the effect of CBFeed on animals and on the final product (by stabbing and studying animals in the SES of the Republic of Uzbekistan and "SGS" *).

You can get a more detailed test report - for this,

write to E-mail: info@cbfeed.uz or call: +998909410608

We thank you for your attention!

^{*} SGS – The Swiss company, the world leader in the field of inspection services, expertise, testing and certification.

Brief information about the company "Natural Ventures"

With each year, with the increase in the volume of rice production, the problem of utilization of rice husk and its impact on the environment increased. In 2015, several studies were conducted to find a way to solve this problem. Ultimately, it was decided to use rice husks for the production of animal feed.

At that time we had some experience with rice hulls. However, we spent another 2 years to investigate the effective way of processing these wastes in safe animal feed. This new innovative way of processing rice husk in mixed feeds was a successful attempt, and our company was able to achieve the main goal.

In 2017, we founded our new laboratory in Tashkent, where we were able to conduct an experiment with this new recycled innovative product. At the end of this year, we had a ready animal feed, which fully met the parameters necessary for safe and efficient feed.

In 2018, as a result of deep international marketing research conducted in Uzbekistan, we contacted foreign companies and offered them our new product. These actions marked the beginning of a new international partnership.

Our Mission

Creation of a company that will contribute to the protection of the environment and livestock development in the world. Solving one of the global environmental problems, we are striving to improve the technology of production of animal feed. This will lead to an increase in the volume of animal feed, and this in turn will lead to an increase in the number of cattle and thus an increase in meat and dairy products in the world.

The value of the product is measured by two factors: first, it is the cleaning of the planet, because we use ingredients that are currently considered to be garbage and do not decompose quickly, and secondly, they are inactive in feeding animals, and we get and prepare feed from it.



CEO Abror Dadakhodjaev

"Our priority is to solve the global problem and ensure the demand for high-quality feed."

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