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Analysis of Priority Areas of the Dairy Industry Development in Russia under Economic Risk

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ABSTRACT

The paper has analyzed the dynamics of production of main dairy products in Russia and Krasnodar region. It has also analyzed the level of production capability utilization by dairy organizations in the Russian Federation and region from the perspective of commodity groups. The paper has studied milk processors of Krasnodar region on the level of available capacity utilization at random. The paper has estimated seasonal fluctuations of production volumes of dairy butter, butter pastes and whole-milk production on milk basis. It has classified regional dairy organizations of Krasnodar region by the average annual capacity and the level of its utilization. The paper has also proved direct links between grouping signs and profitability of the realization of dairy products. The method of statistical grouping has proved the need to increase the level of capacity utilization by milk-processing organizations. Moreover, the paper has considered the main types and ways of milk and dairy product falsification. It has analyzed the changing specific weight of low-quality goods in the market of processed milk and the results of random check on naturalness of dairy brand-name products. Dairy processors' competitive advantages are proved. Priority areas of domestic dairy industry development such as production concentration and diversification, modernization of the technical and technological base of organizations, the development of an innovative environment, increased requirements to the quality of dairy products.

JEL Classification: L16, L23, Q02, Q13.

Keywords: Dairy industry, development priority areas, dairy products, release, level of capacity utilization, production seasonality, statistical grouping, realization profitability.

1. INTRODUCTION

Under the aggravation of economic crisis caused by military conflicts in Syria and Ukraine, increased hydrocarbon prices, the application of sanctions for Russia, their renewal and the effect of a reciprocal

commodity embargo the food fulfillment of the country in many respects depends on the level of effect development and efficiency of all links and branches of the domestic agro-industrial complex. The dairy industry, providing consumers with foodstuffs that possess the high nutritional value and caloric content and traditionally possessing the significant specific weight (about 5.0-6.0%) in the structure of households' consumer expenses, is the most important of them.

Theoretical and methodological base of research is presented by international and domestic works in the field of management and economy of the dairy industry.

The research uses statistical, methodical and standard Russian Federal State Statistics Service materials, statistical materials of the Republic of Belarus, reports and readings of scientific organizations for management of the dairy industry economy.

In the furtherance of objectives, a systematic analysis, statistical methods, computational and analytical and others were used.

2. ANALYSIS OF DAIRY PRODUCTION

Nowadays, dairy production in Russia occupies more than 1500 organizations of various forms of ownership, large and middle of which are presented by about 30.0%. Total average annual capacity of milk-processing organizations in 2014 was the following: whole-milk production - about 17 million tons; cheese and cheese product production - about 650 thousand tons; butter and butter paste production – about 566 thousand tons (“Strategy of the food and processing industry in the Russian Federation for the period till 2020”, 2016).

Decreasing production volumes of unpasteurized milk aggravates processors' competition in the fight for raw markets (Bogoviz, Ragulina, Lobova, Zhukov & Stepanova, 2016). However, despite the limitation of raw material resources, the release of dairy and milk-containing products in the country is annually growing (Table 1).

So, over the period from 2009 to 2014 processed fluid milk production has been increased by 20.2%, butter and butter pastes by 12.4%, cheese and cottage cheese by 24.9%. At the same time, production of such resource-intensive products has been decreased by 5.8%.

Table 1
Production of main dairy products in the Russian Federation, thousand tons
(Federal State Statistics Service, 2016)

<i>Assortment group of products</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2014 in % to 2009</i>
Processed fluid milk	4422	4944	4926	5267	5386	5317	120.2
Butter and butter pastes	225	212	219	216	227	253	112.4
Cheese and cottage cheese	995	1120	1127	1180	1167	1243	124.9
Dairy thickened products, millions of standard cans	881	883	855	873	860	830	94.2

Krasnodar region is also characterized by increased production of many dairy product types that is caused by the market requirements (Table 2) increasing together with the consumer demand.

Table 2
Production of main dairy products in Krasnodar region, thousand tons (Federal State Statistics Service in Krasnodar Region, 2014; Federal State Statistics Service in Krasnodar Region, 2015)

<i>Product type</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2014 in % (times) to 2009</i>
Processed fluid milk	244.8	268.9	270.5	334.1	322.5	326.2	133.3
Dairy cream	4.3	4.1	2.8	4.6	7.2	8.2	190.7
Butter and butter pastes	7.8	7.7	9.8	10.0	10.2	9.7	124.4
Cheese and cottage cheese	47.2	77.3	97.2	90.0	75.0	82.3	174.4
Including cottage cheese	20.3	46.1	59.4	51.1	31.7	40.3	198.5
Plain yogurt	1.7	3.5	2.6	2.6	3.3	3.1	182.4
Ayran	–	0.2	0.3	0.2	0.1	0.1	X
Plain kefir	73.6	71.5	64.9	96.1	104.0	102.4	139.1
Varenets	1.1	0.7	0.8	0.7	0.6	0.5	45.5
Baked yogurt	17.3	19.4	19.7	19.9	20.0	20.1	116.2
Lapper milk, including mechnikovskaya	0.1	0.2	0.2	0.3	0.3	0.3	by 3.0 times
Sour cream	55.8	52.4	45.9	52.8	49.5	46.4	83.2

3. LEVEL OF AVERAGE ANNUAL CAPACITY UTILIZATION

Nevertheless, according to the Federal State Statistics Service official site, in recent years across Russia in general the level of average annual capacity utilization on the release of whole-milk products does not exceed 59.0%, of butter – 35.0%, cheeses – 64.0%, and thickened dairy products – 63.0% (Table 3).

Table 3
Level of average annual capacity utilization by dairy organizations in the Russian Federation, % (Tepliyakov, 2012)

<i>Year (period)</i>	<i>Whole-milk products (on a milk basis)</i>	<i>Butter and butter pastes*</i>	<i>Cheese and cheese products**</i>	<i>Dairy thickened products***</i>
1990	76	76	86	79
2000–2004 (average of period)	38	26	55	56
2005–2009 (average of period)	53	29	63	58
2010	57	27	63	58
2011	56	31	63	55
2012	59	30	62	63
2013	59	31	59	60
2014	59	35	64	62
The level (+, -) derivation of 2014 from: 1990	–17	–41	–22	–17
2010	2	8	1	4

*Through 2009 – tallow oil

**Through 2009 – rennet cheeses

***Through 2009 – dairy canned goods

In due course, the elimination of the location of planned economic activity with the insufficient development of mechanism of market communications, uncontrollable prices, and the expansive growth of transport tariffs has also broken the existing exchange of products between Russian regions and also with the countries of the near and far abroad (Bashkov & Silnov, 2015). The decreased consumer demand and steep decline in agricultural production have caused the output decrease in processing and food industries and underutilized capacities which are available here (Kremyanskaya, 2002).

By comparison, in the Republic of Belarus 88.0% of average annual capacities for milk processing, including 73.0% for whole-milk product processing on a milk basis, 98.0% for cheese production, 81.0% for butter production, 89.0% for thickened milk canned goods, 85.0% for dry whole milk, and 96.0% for dry skim milk are used (Teplyakov, 2012). In Russia, despite the state efforts on the dairy industry stabilization, but over the period from 2000 to 2014 there was no success to increase the percent of capacity utilization to the level of 1990. The same situation is also characteristic for Krasnodar region (Table 4).

In general, over the period from 2010 to 2014 average annual capacities for the release of whole-milk products (on a milk basis) were uploaded across the region at best for 74.0%, for butter and butter paste production for 35.0%, and for cheese and cheese product production for 69.0%.

Certain dairy organizations essentially vary by the levels of the considered indicator and their time instability. This circumstance is explained by various economic, production and technological operation conditions of economic entities against their absence in stable supply chains of dairy raw materials. The situation is aggravated by the seasonality of unpasteurized milk production and the variation of its qualitative characteristics during the spring-summer and autumn-winter periods caused by the month of lactation and the content of feed rations. It interferes uniform use of capacities by milk-processing organizations within a year that, in turn, leads to the existence of seasonal fluctuations in dairy output volumes (Figure 1, Figure 2).

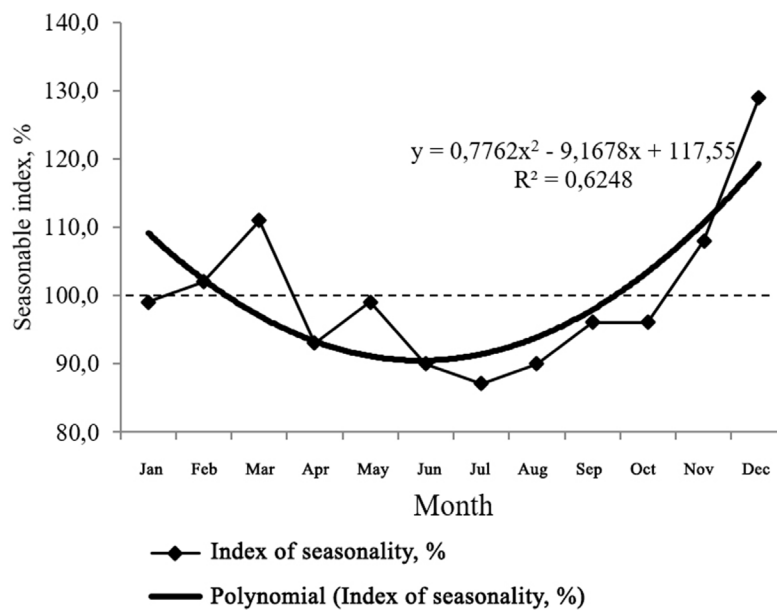


Figure 1: Seasonal wave of butter and butter paste production in Krasnodar region, 2011-2014

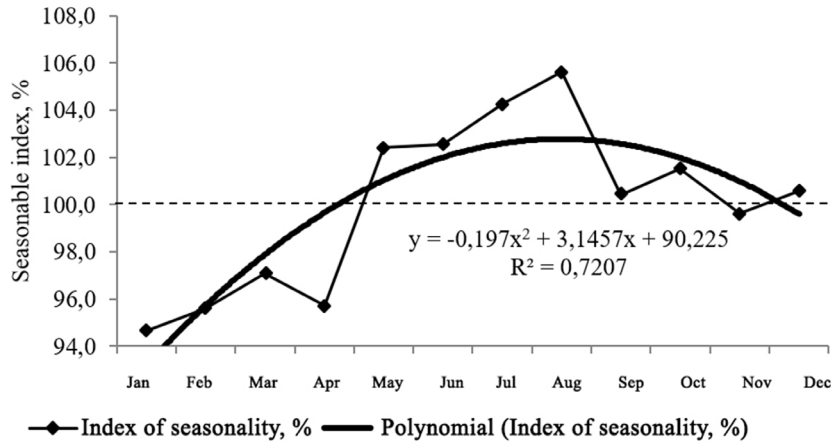


Figure 2: Seasonal wave of whole-milk production on a milk basis in Krasnodar region, 2011-2014

Thus, the calculations have showed that larger producer, the most difficulties with capacity utilization he faces (Table 5). On the other hand, efficiency of production and realization of dairy output increases with the growing organization size that is caused by the opportunity to dictate raw material cost prices, containing their growth and blowing brand. So, there is the cost decrease by 1 rub of market products from the first group of organizations to the third.

Lower level of expenditure in large milk processing organizations testifies to their competitive advantages in the consumer market and, as a result, the existence of much more freedom for the price policy implementation, and also the ability to achieve top financial results. The research has found out that the profit margin per 1 kg of dairy raw materials in the third group of organizations in the conditions of 2012 exceeded the level of the first group by 2.11 rub, in 2013 – by 3.47 rub, and in 2014 by 10.88 rub. The profitability of product sales in organizations of the third group was higher than the level of the first group in 2012 by 5.7%, in 2013 – by 7.5%, in 2014 – by 20.1%.

The increasing level of capacity utilization use is a strategically important task of any milk-processing organization and its solution conducts to decreased expenditure of dairy production and the significant growth of its implementation profitability (Table 6).

So, in 2013 and 2014 in a group of organizations with the smallest level of average annual capacity utilization for the release of whole-milk production (on a milk basis) per 1 kg of dairy raw materials there is expenditure of 2.05 and 6.91 rub respectively. Realization unprofitability over two years has been increased by 7.2%. On the average the studied set of milk-processing organizations over the period from 2012 to 2014 shows the decreased degree of capacity load by 6.2% and decreased expenditure of whole-milk production by 0.05 rub. There is also the growth by 4.14 rub of income got on the average per 1 kg of dairy raw materials (“Identification and counterfeiting of milk and dairy products”, 2016). The average level of realization profitability, despite the increase by 5.4 percentage points over three years is quiet low.

4. DAIRY PRODUCT COUNTERFEITING

To decrease output costs and to increase on this basis business marginality, some unfair processors use dry milk and palm oil in their production. Though now the problem of partial counterfeiting of dairy products

is not quite urgent as it was at the beginning of the 2000s, but, nevertheless, does not lose its relevance (Bogoviz, Ragulina & Kutukova, 2016). Figure 3 presents counterfeiting possible types and ways.

Table 4
Level of average annual capacity utilization by dairy organizations
of Krasnodar region (sampling observation), %

Name of the organization	Whole-milk products (on a milk basis)					Butter and butter pastes					Cheese and cheese products				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Tbilisi creamery CJSC	80.4	68.1	78.9	77.2	60.7	18.8	21.8	14.5	11.1	11.7	100.0	79.7	67.4	55.5	54.7
Kubarus Milk OJSC	64.4	68.2	71.6	80.5	62.4	9.5	2.7	3.2	2.7	2.8	22.6	33.7	36.3	32.5	18.5
Calorie LLC	56.2	54.8	56.8	61.6	67.1	23.0	39.2	38.6	42.9	68.5	62.7	65.6	63.1	61.1	30.3
Primorsko-Ahtarsk Dairy Plant CJSC	54.8	54.6	58.0	66.5	73.3	79.8	100.0	100.0	92.4	88.5	2.0	7.9	10.3	3.3	3.3
Timashevsk Dairy Plant OJSC Wimm Bill Dann branch	94.3	73.0	75.9	76.4	71.9	25.6	17.3	34.4	30.4	15.7	59.1	51.5	64.3	64.9	58.6
Kropotkin Dairy Plant OJSC	21.4	15.5	15.5	8.2	5.6	11.4	21.2	8.1	3.1	3.5	7.4	10.9	14.2	8.6	1.5
On the average in Krasnodar region	74	67	73	72	67	19	27	35	32	29	35	43	59	69	63

Table 5
Grouping of dairy organizations of Krasnodar region by average annual capacity
(whole-milk products on a milk basis)

Group of organizations on average annual capacity, thousand tons	Number of organizations in a group	Average annual capacity on the average in a group	Level of average annual capacity utilization on the average in a group, %	Cost per rub of market products on the average in a group, rub.	Income (expenditure) per 1 kg of dairy raw materials, rub.	Realization profitability (unprofitability), %
<i>2012</i>						
To a maximum of 19.0	3	12.2	88.8	0.98	0.66	2.0
19.0–39.0	4	24.8	74.8	0.97	0.79	3.6
Over 39.0	5	77.5	63.3	0.93	2.77	7.7
In total and on the average	12	43.6	67.3	0.94	2.16	6.6
<i>2013</i>						
To a maximum of 24.0	4	15.0	74.9	1.01	-0.34	-0.9
24.0–39.0	3	31.2	65.7	0.99	0.28	1.5
Over 39.0	5	89.9	61.9	0.94	3.13	6.6
In total and on the average	12	50.2	63.7	0.95	2.27	5.4
<i>2014</i>						
To a maximum of 23.0	3	10.6	88.4	1.07	-2.85	-6.3
23.0–34.0	3	27.4	61.3	0.94	1.63	6.1
Over 34.0	6	80.2	59.3	0.88	8.03	13.8
In total and on the average	12	49.6	61.1	0.89	6.30	12.0

Table 6
Grouping of dairy organizations in Krasnodar region by the level of average annual capacity utilization (whole-milk production on a milk basis)

Group of organizations on average annual capacity, thousand tons	Number of organizations in a group	Average annual capacity on the average in a group	Level of average annual capacity utilization on the average in a group, %	Cost per rub of market products on the average in a group, rub.	Income (expenditure) per 1 kg of dairy raw materials, rub.	Realization profitability (unprofitability), %
2012						
To a maximum of 19.0	3	12.2	88.8	0.98	0.66	2.0
19.0–39.0	4	24.8	74.8	0.97	0.79	3.6
Over 39.0	5	77.5	63.3	0.93	2.77	7.7
In total and on the average	12	43.6	67.3	0.94	2.16	6.6
2013						
To a maximum of 24.0	4	15.0	74.9	1.01	-0.34	-0.9
24.0–39.0	3	31.2	65.7	0.99	0.28	1.5
Over 39.0	5	89.9	61.9	0.94	3.13	6.6
In total and on the average	12	50.2	63.7	0.95	2.27	5.4
2014						
To a maximum of 23.0	3	10.6	88.4	1.07	-2.85	-6.3
23.0–34.0	3	27.4	61.3	0.94	1.63	6.1
Over 34.0	6	80.2	59.3	0.88	8.03	13.8
In total and on the average	12	49.6	61.1	0.89	6.30	12.0

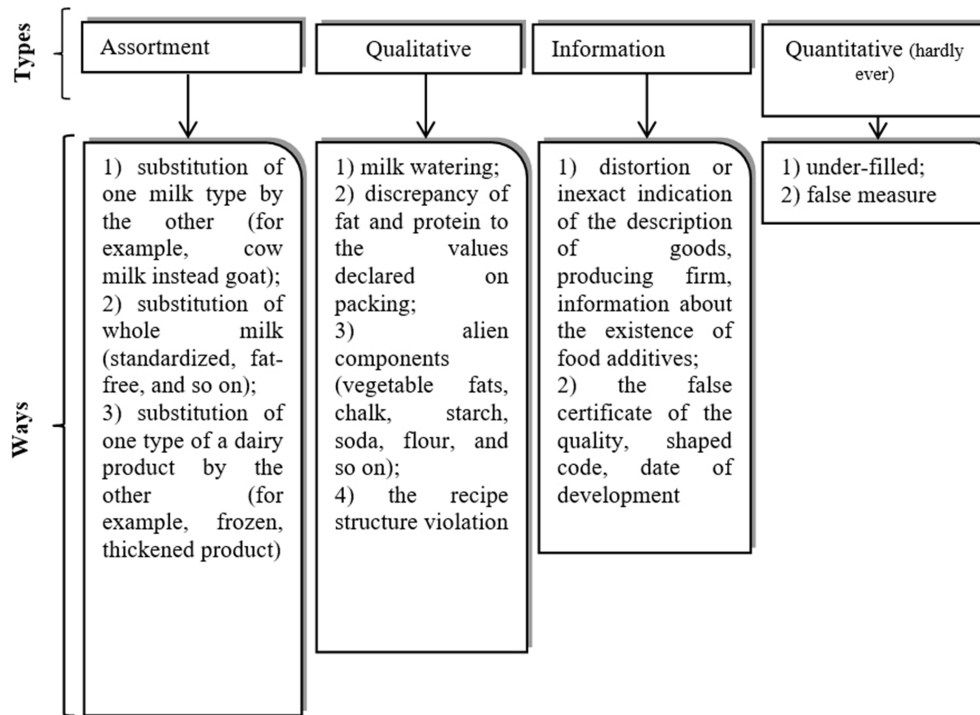


Figure 3: Scheme of counterfeiting main types and ways of milk and dairy products (according to the data) (Matveeva, 2010)

In 2014, according to RosStat (Federal State Statistics Service in Krasnodar Region, 2015), it was rejected 3.7% of the total number of samples of butter, a 4.3% of dairy products and 2.5% cheese domestic production. Inadequate quality of imported goods recorded 1.7, 2.1, and 3.9% of cases respectively (Table 7).

Table 7
Share of the inferior dairy products which came to the consumer market of the Russian Federation (in percent of all selected samples)

Year	Product origin	Name of goods (a commodity group)		
		Tallow oil (dairy butter)	Whole-milk products	Cheeses
2000	Domestic	23.9	18.8	21.9
	Foreign	13.7	36.4	27.1
2005	Domestic	2.0	4.4	1.6
	Foreign	4.8	5.3	5.6
2010	Domestic	6.0	6.9	3.2
	Foreign	0.2	3.9	1.8
2011	Domestic	3.6	5.5	3.3
	Foreign	0.4	2.6	3.3
2012	Domestic	1.9	4.2	1.3
	Foreign	0.2	3.5	2.4
2013	Domestic	1.7	1.0	1.3
	Foreign	0.2	2.7	4.3
2014	Domestic	3.7	4.3	2.5
	Foreign	1.7	2,1	3.9
The level (+, -) derivation from to 2000 by goods	Domestic production	-20.2	-14.5	-19.4
	Foreign production	-12.0	-34.3	-23.2

Over fifteen years, as the table shows, the specific weight of inferior dairy products which do harm has considerably decreased. Meanwhile, the data are selective that gives the grounds to assume the existence of more significant scales of a mentioned phenomenon. According to experts, Russia produces about 4 million tons of dairy products using vegetable fats. In some commodity groups the share of a counterfeit exceeds 50.0% (thickened milk, butter) (Matveeva, 2010). According to the Consumers Union “RosControl”, the specific weight of faulty cheeses in the food market of the country can reach 70.0% (“Seventy percent of domestic cheeses and oil in the market – counterfeit”, 2016). It should be emphasized here that around the world a product is not dairy if it has at least 1.0% of vegetable fats instead of milk fat, and there is no the concept milk-containing product (“News of the Russian dairy market”, 2016).

Dairy products of the same assortment group of different producers are quite significantly differentiated on by the naturality index. The results of random checks conducted by the Consumers Union “RosControl” prove it (“A list of tested categories of dairy products”, 2015). Table 8 presents the data for 27 July 2015.

The decrease of the naturality occurs if milk is reconstituted, standardized, and sterilized or ultra-sterilized. The calculation of the naturality kefir index considers milk that was used for its production: if milk is whole – the naturality index is high, if milk is standardized or fat-free - the index decreases. The calculation of the cottage cheese naturality index demands the same. Besides, its decrease is caused by dry milk. The naturality index of all types of dairy products decreases if a producer established longer date of

consumption in comparison with a recommended period according to normative documents that proves the existence of preservatives inside. It should be emphasized that Table 8 present the results of analysis only of products which have no vegetable fats as experts checked. Otherwise, it belongs to so-called black list that volume is quite big (“A list of tested categories of dairy products”, 2015).

Table 8
Results of random check of blown dairy products, which are out of the black list to be adulterated, conducted by the Consumers Union “RosControl”

<i>Product brand</i>	<i>Producer</i>	<i>Naturality index</i>
<i>Milk drinking (0.9 – 1.0 l)</i>		
“Domik v derevne” (3.5 %)	Wimm Bill Dann OJSC	80
“Vkusnoteevo” (3.2 %)	Molvest Company	80
“Prostokvashino” (3.5 %)	Group of Danone companies in Russia	85
<i>Kefir (835 – 1000 g)</i>		
BioMax (1.0 %)	Ufamolagroprom OJSC	75
“Vkusnoteevo” (1.0 %)	Molvest Company	80
“Domik v derevne” (1.0 %)	Wimm Bill Dann OJSC	75
Kefiric product “Aktivia” (1.0 %)	Group of Danone companies in Russia	75
“Prostokvashino” (1.0 %)	Group of Danone companies in Russia	80
<i>Cottage cheese</i>		
“Vkusnoteevo” (9.0 %)	Molvest Company	65
“Chistaya liniya” (9.0 %)	OOO “Chistaya liniya” Product’	75
“Domik v derevne” (0.2 %)	Wimm Bill Dann OJSC	64
“Savushkin khutorok” (1.0 %)	OJSC “Brest dairy Plant” (The Republic of Belarus)	64
“Prostokvashinoo” (0.1 %)	Group of Danone companies in Russia	58

5. CONCLUSIONS

Conducted researches note that now, despite a steady tendency of increased milk and dairy production, dairy organizations both in the Russian Federation in general and in Krasnodar region are characterized by significant capacity underutilization. The lack of raw materials, the seasonality of its input and minimum product acceptability against the difficult financial position induce dairy processors to look for alternative ways of their uploading tradeoff in quality. Under these circumstances large organizations which have quite good material resources for acceleration of production growth on the basis of its modernization, diversification and large-scale innovation introduction are at advantage.

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