

# Higher education institutions' contribution for development of sustainable agro-food production systems in Kyrgyzstan and Uzbekistan

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## YO CURUT

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### Abstract

Medical literature notes that the Kyrgyz Republic, like most mountainous regions of the world, is endemic for iodine deficiency in soil, water and food. There is no iodine in our soil and water because the Republic is located far from seas and oceans, and more than 80 percent of the territory is occupied by mountains. Accordingly, iodine has nowhere to be found in fruits and vegetables grown in the fields by domestic farmers.

The rate of iodine deficiency related diseases remains high in Kyrgyzstan. Thus, according to the Ministry, iodine deficiency occurs in 61.6% of pregnant women and 43.1% of school-age children.

### Aim

- iodize Kyrgyz national dairy product - kurut ;
- provide iodized kurut to children, adolescents and pregnant women at the initial stage;
- expanding the range of products, goods with micro and macronutrients.

### Tasks

One of the ways to solve problem of iodine deficiency can be the production of iodine-enriched products and their use in nutrition.

### Materials and methods

#### The process of making yokurut



1. Prepare the suzmo.
2. Neutralize with  $\text{Ca}(\text{OH})_2$ .
3. Mixing.
4. Add salt ( $\text{KIO}_3$ ).
5. Drying.
6. Iodine test (with solution).

### Results

Naryn region is a high mountainous area and is located at an altitude of 2000 meters above sea level. The need for iodine cannot fully provide children, adolescents, adults and pregnant women. For this reason, iodine deficiency in people is at a high level. Residents take iodine from food iodized salt. Seven types of iodized salt are sold in Naryn: Kyrgyzstan - Ak-Tuz, Bereke, Extra, Kartuz; Kazakhstan - Araltuz; Belarus - Extra; Russia - Iletsckaya. Applying the international standards of these salts, the following results were taken in the photo during the color reaction. Comparing the color reaction of salts for the presence of iodine, the salts produced in Kyrgyzstan have lower iodine content. As a result, the iodine content does not meet the requirements.

Table 1

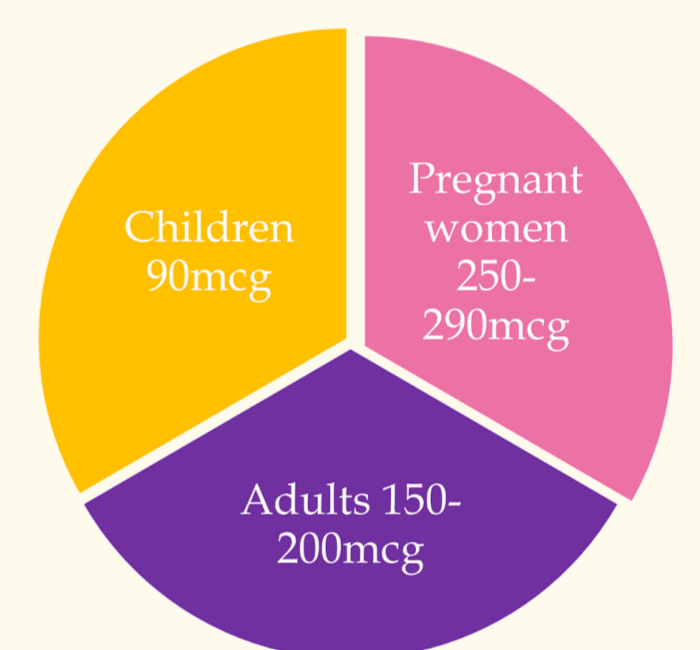
Number of registered cases of endemic goiter among the population in Naryn district for 2022

Population center	Total	Including first time	18 years of age or older		15-17 years old		Up to 14 kids		Up to 1 year		1-4 years old	
			Total	Including first time	Total	Including first time	Total	Including first time	Total	Including first time	Total	Including first time
Summary of the region	2322	149	2125	115	76	8	114	26	0	0	7	2
Aktalin district	107	8	97	8	3	0	6	0	0	0	1	0
Atbashin district	421	21	399	19	10	1	11	1	0	0	1	0
Kochkorsk district	362	33	325	23	18	2	19	8	0	0	0	0
Jumgal district	98	7	88	6	2	0	8	1	0	0	0	0
Naryn district	561	43	499	31	22	3	37	9	0	0	3	0
Naryn city	773	37	717	28	21	2	33	7	0	0	2	2

Almost all modern dairy products can be fortified with nutrients: but as a non-fat dairy product fortified with iodine, we find it ideal to use curruta. After all, kurut is known as a product that is often consumed by pregnant women and young children.



#### Units iodine intake level



Schools	Classes	Quantity	10%	15%	20%	25%	30%	40%	50%
Abylkasym Zhutakeyev High School Zhan-Bulak village	2th grade	18	14				1	1	2
	3th grade	35	16	1	6	1	3	1	7
Toktogul Satylganov School №. 1	4th grade	40	20		5		4	5	7
<b>Total</b>		<b>93</b>	<b>50</b>	<b>1</b>	<b>11</b>	<b>1</b>	<b>8</b>	<b>7</b>	<b>16</b>

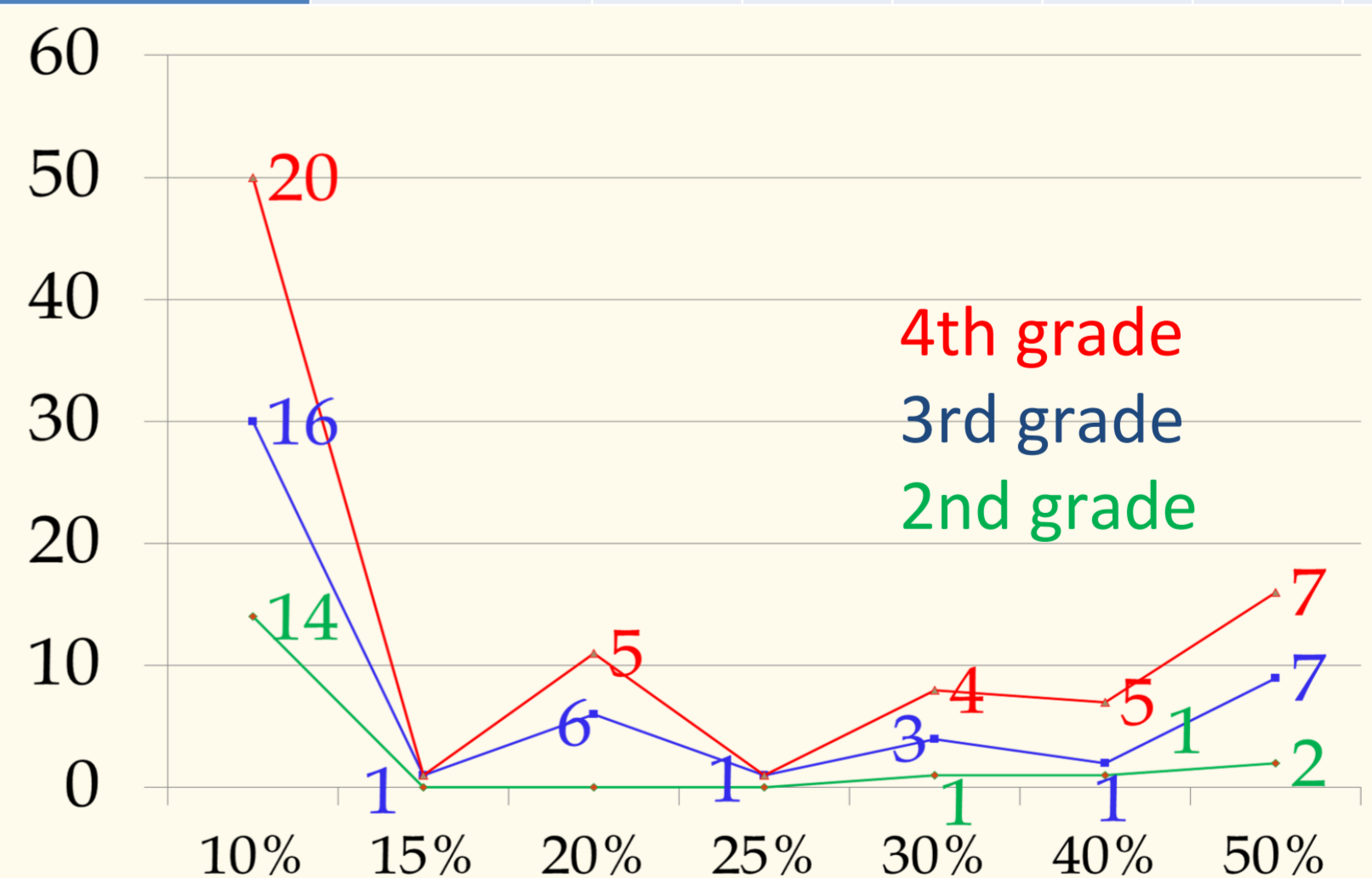


Fig. 1. Iodine deficiency indicators of pupils in grades 2,3,4

### Conclusion

This product increases the iodine content in the body not only of the population of Naryn region, but also of all iodine-deficient peoples of the region.

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