

Introduction of Hydroponic Fodder Production in Osh province

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“Green Economy and Sustainable Private Sector Development in Kyrgyzstan”



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КЫЗМАТТАШТЫГЫ
DEUTSCHE ZUSAMMENARBEIT**

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Programme areas and sectors

Nationwide level:

- Policy development;
- Green Economic Modelling (GEM);
- Green Finance;
- Sustainable Tourism;
- Social Behavioral Change

Batken:

- Rice

Bishkek:

- Heat pumps

Osh:

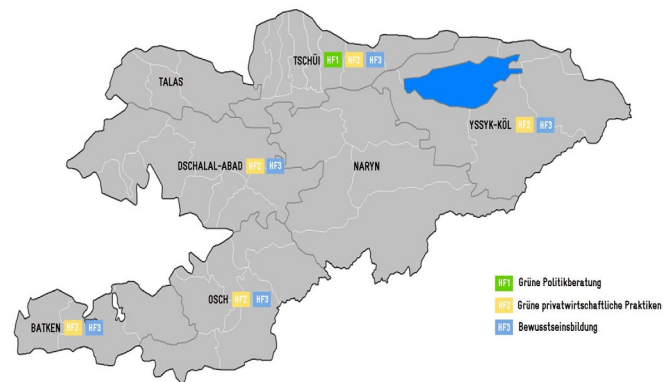
- Sustainable tourism;
- Cereals;
- Heat pumps;

Jalal-Abad:

- Early Vegetables;
- Organic plums;
- Cereals;
- Sustainable Tourism;

To be determined:

- Green Innovation Facility



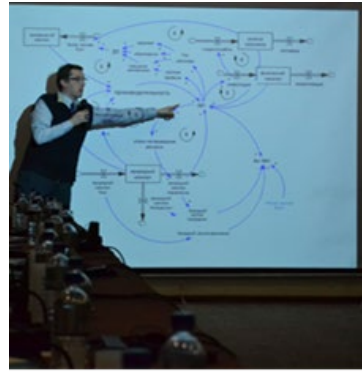
Programme main directions

1. Green Economy Policy:

- **Promoting Green Policy Measures** in line with the needs of the private sector;
- **Fostering institutionalization of Green Economy Modelling (GEM)** for supporting policy makers in developing evidence-based policy decisions;
- **Green finance:** supporting National Bank and Ministry of Economy and Commerce with Green Taxonomy, supporting Union of Banks and Microfinance Institutions on green finance products – building capacities of SSME;
- **Supporting public-private dialogues (PPDs)** on GE issues in Kyrgyzstan (Annual Green Economy Forum, Green Expo Fair, Coordination Council on GE development in the KR);

2. Green Economic Practices:

- **Rice VC** – developing advisory services and access to inputs, introducing improved production practices, maintaining water-savings;
- **Organic Plum Production:** supporting organizational development of cooperative, certification and access to new markets;



Programme main directions

2. Green Economic Practices:

- **Cereal production in rainfed areas:** scaling up IRDP approach on zero/minimal tillage
- **Sustainable Tourism Development:** conducting capacity building of associations and tourism destinations on developing a packages of new products and services, supporting implementation of responsible tourism standards, developing sustainable tourism products and tours;
- **Heat Pump Promotion:** enabling middle income urban households to access heat pumps through financial tools, capacity building and awareness rising;

Output 3. Behavioral Change:

- **Building capacities of organizations** with large outreach potential to change behavior and establish benchmarks;
- **Promoting Green Economy Curriculum** at universities in Bishkek and in the regions;



Levels of interventions of the Project in Livestock in Osh oblast (2020 - May 2023)

Macro level: Veterinarian Chamber, Veterinarian Inspection

- capacity building of state/private veterinarians and improvement of their services
- further facilitation and holding data base and developed materials after the project's exit
- Development and implementation of Module for veterinary medicine

Mezo level: “Manas” University

- linkages with education
- capacity building of the students, transfer from theory to practice

Micro level: main actors

- farmers on breed improvement (Aberdin-angus breed)
- local slaughter houses on safety slaughtering of meat, food safety improvement
- meat shops for selling of safety meat/traceable meat, linkages with consumers
- restaurants for supply of safety/traceable meat, linkages with consumers
- extension services: veterinarians, artificial inseminators, fodder producing farmers



Green Alliance meeting with private and public sector in Osh and Jalalabad oblasts (2021)

- Consultation
- Focus group
- Individual meetings
- Field research
- Analysis of legal base and data



Challenges facing in production of traditional fodder

- **Lack of agricultural land**
- **Increasing price for tradition fodder**
- **Progressively higher cost of fertilizers**
- **Fencing requirement (to keep the unwanted animals out)**
- **Laboure shortage**
- **Access to agricultural machinery**



Number of livestock in Kyrgyz Republic

Type of livestock	Period for comparation		% of increase
	2006	2020	
Number of cattle	1 116 733	1 715 776	53,6
Number of horses	347 526	539 644	55,3
Sheep and goat number	4 046 949	6 278 736	55,2
Number of cows	584 941	855 050	46,2



Degradation of pastures in Kyrgyz Republic

Type of pastures	Square (K. hectares)	% to total square	Square of degradation (K.hectares)	Level of degradation (%)
Summer pastures (Отгонные)	3951,0	43	1432,0	36
Intensive (autumn-spring)	2756,0	30	1378,0	50
Near villages (winter)	2440,0	27	1718,0	70
Total square	9147,0	100	4528,0	49



Hydroponic fodder



What is Hydroponic?

- **The word Hydroponic comes from a Greek word meaning “water working”**
- **It is the technology of growing the crops without the soil but with water or dilute nutrient solution**
- **It is often done in a greenhouse**
- **Fodder hydroponic does not require added nutrients and can grow with water only**
- **The reserve material in the seed is sufficient for its growth for a short period of time**
- **For production of hydroponic fodder we can use cereals (barley, oats, wheat) and corns**



The advantage of hydroponic fodder production

- It requires just 48 square meters area to produce 1000 kg fodder every day against 5 - 30 acres land
- It saves water to the extent of 95% and the water can be recycled
- It can be grown throughout the year
- It can be harvested in just 7 or 14 days
- It also saves labor, energy and time
- No pesticides or other chemicals
- It creates addition jobs for women. Women in Kyrgyzstan have a wide experience on cooking sumelek and bozo
- Its give time to **recover pastures** and **mitigate** climate changes
- High quality of meat (premium). Reduction of meat cost for customers.



Показатели	Гидропонный корм, в 1 кг СВ	Barley / Ячмень фуражный в 1 кг СВ	КК-65 (Комбикорм) в 1 кг СВ
Обменная энергия, М/Дж	12,0	10,7	10,31
Сырой протеин, г	206,87	106,15	150,1
Лизин, мг	7,36	4,00	4,91
Метионин, мг	3,66	1,8	2,36
Серин, мг	6,29	0,49	0,55
Цистин, мг	2,47	1,25	1,32
Сахар, г	206,03	5,61	33,03
Сырой жир, г	60,36	23,56	29,0
Сырая клетчатка (fiber), г	129,62	48,26	91,9
Сырая зола, г	50,11	27,42	28,2
Кальций, г	8,07	0,60	0,82
Фосфор, г	8,12	3,5	3,95
Магний, г	1,47	0,95	1,22
Натрий, г	0,25	0,11	0,12
Цинк, мг	54,53	26,25	27,02
Селен, мг	0,29	0,05	0,10
Витамин В1, мг	13,68	0,78	0,81
Витамин В2, мг	18,90	1,25	1,42
Витамин Вс, мг	8,09	1,27	1,30
Витамин Е, мг	325,75	13,71	14,9
Каротин, мг	55,12	3,25	3,9



Project activities

- 5 April 2022: Initial workshop by Training Center of the Agribusiness associations
- 26-27 October 2022: training on hydroponic fodder production (15 experts from Osh and Jalalabad oblasts) with involvement of international expert from Canada Mr. Nariman Khayltash. 6 from 15 experts are starting production of hydroponic fodder. Group of trained farmers got funds from GEF UNDP for further implementation of HFP (50000 USD)
- 6-7 December 2022: training on hydroponic fodder production with involvement of international expert from Canada Mr. Nariman Khayltash with study trip to newly open hydroponic fodder production in Mady v. and Nariman v.



How to produce and use hydroponics fodder

3rd round of training in Osh oblast in 2023



Main results:

- **135 farmers and veterinarians** (out of them **19** are women) have passed **trainings on hydroponics fodder production and nutrition optimization**; **16** trained farmers have started **hydroponics fodder production** and replaced traditional fodder by up to 20%.
- **2 demonstration of hydroponic installations** have been created in the villages of Mady and Shark and are frequently visited by interested farmers and veterinarians.
- Farmers who started hydroponic fodder production pointed out decreasing of cost for fodder, increasing of meat quality, increasing of fat of milk

Decreasing of CO2 (FAO methodology 2006, Tier3)

- In average cow produce **3,65 ton of CO2 in 1 year** by eating 20 kg tradition fodder.
- With using hydroponic fodder (5 kg per cow), CO2 emission decreasing by **0,912 тонн in 1 year (25%)**.



Lesson learnt

- Right identification of target group, who are ready to take knowledge and use it
- Identification of experts who are ready to exchange with their experience
- Providing info via social media and groups network
- Involvement of state agencies and donors
- Access to finance and funds
- Increasing of demand



Thank you for attention!

Questions?

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