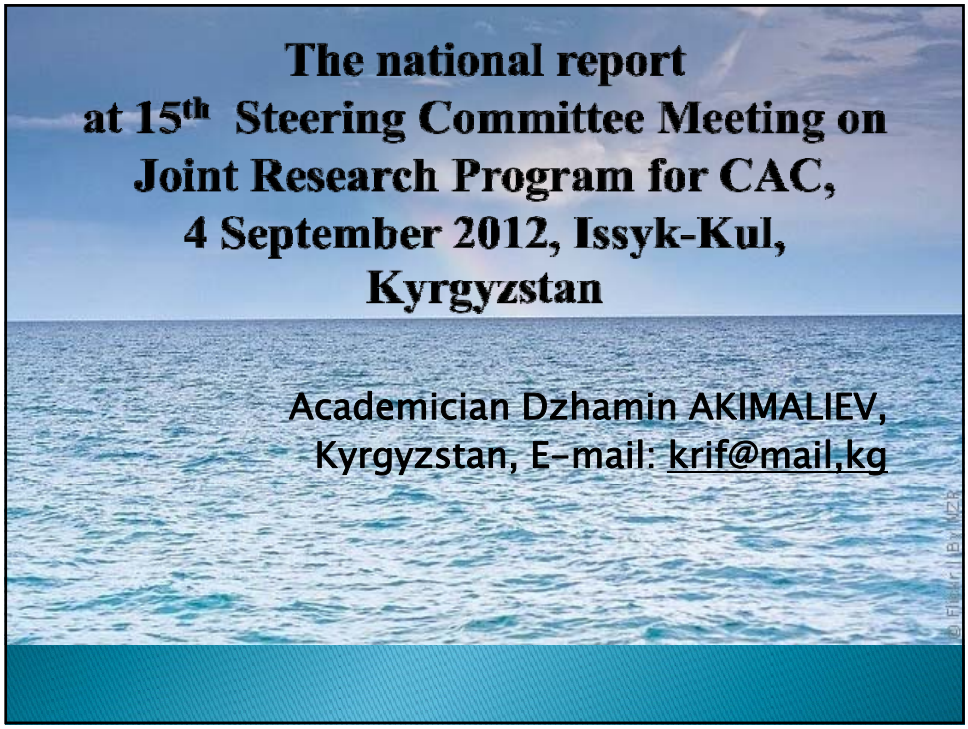



- Kyrgyzstan co-operates with International Centers ICARDA-CIMMYT on wheat germplasm improvement since 1994, and on barley - 1996.
- For 17 years of teamwork it is received 14513 wheat samples and 12730 samples of barley. On leguminous cultures cooperation with ICARDA is begun in 1998. In total it has received: chick pea - 106; lentils - 96 and soya bean - 76 accessions.

- On the base of big number germplasm studying two wheat varieties are bred: Dzhamin is facultative and Almira is winter wheat. Variety Dzhamin is cultivated on the 50 thousand hectares area, and Almira occupies an order of 1 thousand hectares.
- In 2011 the 5 nurseries of wheat in number of 420 accessions were studied. 100 numbers were selected for further breeding work.

- On the base of barley germplasm test received from ICARDA 3 varieties of winter barley are bred: Adel, Jenish and Belek, which are early maturing and drought-tolerant.
- In 2012 joint researches with International Centers ICARDA-CIMMYT on selection of cereals are continued.

- On the base of leguminous materials received from ICARDA the check pea variety Saury was bred, it is beans grinding and drought tolerant.
- On culture of soya bean, the released varieties in republic territory are Amantai and Ak-Jol, intended both for grain yield and for the combined culturing.

- On chick pea and lentil as an initial material for selection work their cold tolerant forms were used. The variety testing nursery of chick pea was sown by 10 samples, and selection - four. Lentil nurseries have sown in parallel. Results of test are processed.

## Conservation of plant genetic resources and their wild relatives

- The information on 2157 samples of plants is put into database. From them 1199 samples are plants of wild flora (tab.1).
- In laboratory conditions the germination percent of stored wheat, rye and oats samples is defined. The germination of 37 wheat varieties of Kyrgyz selection fluctuated from 78 to 100 %.

**Table 1**

**Information on plant samples in database**

| Crop | Cultured | Wild | Total |
|---|---|---|---|
| Cereals | 177 | 5 | 182 |
| Legumes and food | 221 | 281 | 502 |
| Industrial crops | 180 | - | 180 |
| Vegetables | 147 | 7 | 154 |
| Vine crops | 30 | - | 30 |
| Potato | 52 | - | 52 |
| Grape | 45 | 1 | 46 |
| Nut-fruited crops | 12 | 20 | 32 |
| Medicinal plants | - | 881 | 881 |
| Decorative plants | 5 | - | 5 |
| Fruit crops | 89 | 4 | 93 |

- All samples with sufficient germination will be sown for yield to 2013. Their morphological indicators will be studied and economic-valuable traits for entering into database are defined.

- Since 2006 the Kyrgyz Agricultural Research Institute successfully co-operates with the World Center on Vegetable. It is studied 30 accessions of tomatoes, 16 – pepper sweet, 7 – hot pepper, 4 – an eggplant, 7 – cucumbers and 12 – vegetable soya bean (tab. 1).

Table 1

| Years | Number of accessions | | | | | |
|---|---|---|---|---|---|---|
| | Tomatoes | Pepper sweet | Hot pepper | Eggplant | Cucumber | Vegetable soya bean |
| 2007 | 5 | - | - | 4 | - | - |
| 2008 | 5 | 5 | - | - | - | 4 |
| 2009 | 5 | - | - | - | 7 | - |
| 2010 | 4 | - | 5 | - | - | 4 |
| 2011 | 7 | 6 | - | - | - | - |
| 2012 | 4 | 5 | 2 | - | - | 4 |
| Total: | 30 | 16 | 7 | 4 | 7 | 12 |

- In 2011 from the studied varieties of tomatoes CLN3070J was selected, productivity generating close to the standard. It is middle maturing, fruits are oblong or round. In 2012 5 varieties are studied. In hotbeds the tomatoes were sown on 30 March, and planting out – on 2 June.

- From the studied 4 lines of eggplant it was selected Fullness with productivity of 40 t/hectares, that for 4 t/hectares is above the standard.
- It has been studied 16 samples of sweet pepper. From them it was selected 2 samples PBC71 and 0636-6007 with productivity of 48 tons/hectares and they exceeded the standard (variety Bulgarian) on 3,8 t/hectares.

- In 2012 5 varieties of sweet pepper are in studying. The sowing of crops in a hotbed has been made on 30 March and planting out on 21 May.
- On hot pepper 2 varieties were most productive: PP0537-75-41 and PP2377508 which exceed a standard variety Slonovii hobot for 25 and 35 percent, accordingly. The experiences of this year are in a good state.


PP0537-7541


PP0237-7508

- 12 samples of vegetable soya bean were studied. 4 varieties: AGS359, AGS426, AGS423 and AGS441 were selected by forming productivity from 9 to 13 tons/hectares.
- 1 variety of sweet pepper and eggplant are prepared to the State Variety Testing.
- The Farmer's Day, where demonstrated experimental plots of vegetable crops, is hold annually. Results of research experiments cause the big interest in local farmers – vegetable growers.

- In current year work under project IFAD-ICARDA with small farmers-cattle breeders and groups of women – handicraftswomen on five pilot sites of high-mountainous Naryn region is continued.
- On station «Min – Bulak» the seven house farms have 237 sheep, and on station «Lahol» the total livestock has increased by 127 of sheep.

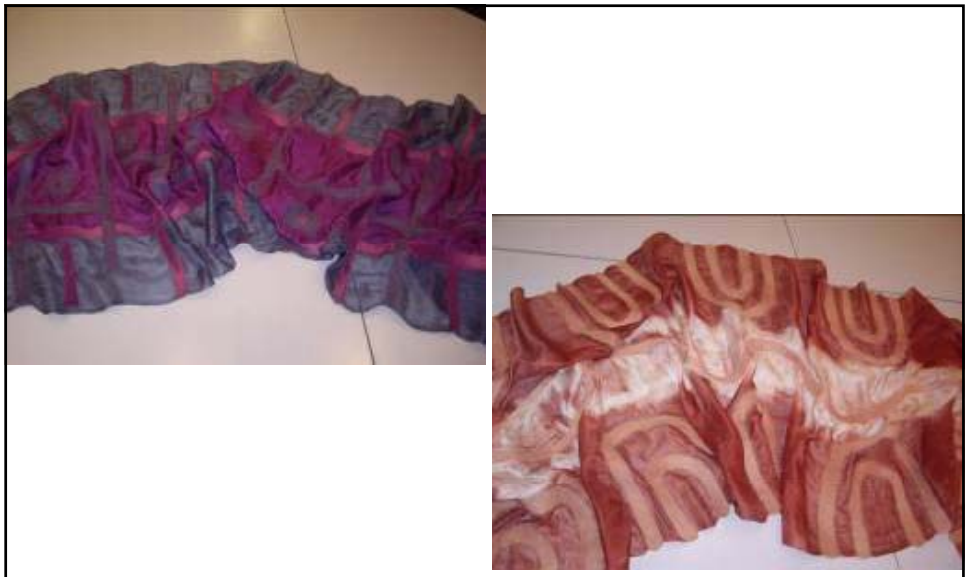
Lambs of 2012, Min-Bulak satation (farmer Musaev S.)

Lambs of 2012, Lahol station (farmer Usupbaeva U.)

- Despite of price reductions on wool market, farmers wish to be engaged on semi fine-fleeced sheep breeding with double efficiency. It is bought four rams of Tjan-Shan breeding, who will be used in copulation of 2012.
- In farm «Saabaji» Kochkor region herd of fine-fleeced sheep on 82 % corresponds to desirable type.

Training course of handicraftswomen

- In May 2012 monitoring of activity of project's pilot groups has been carried out. Progress in manufacture of felt production in all groups was marked that the assortment has extended, the design and quality of manufacturing has improved.



Scarf made by local handicraftswomen

- **The national system of agricultural researches of Kyrgyzstan** is presented by four scientific research institutes: Agriculture, Animal husbandry and Pastures, Veterinary Sciences and Irrigation.

- **Kyrgyz Agricultural Research Institute's** researches are directed to development of the scientifically-proved systems of agriculture and progressive technologies of cultivation of agricultural crops; development of short crop rotation fields for small farmer and co-operative farms; breeding of high productive varieties and hybrids of plants for various zones of Kyrgyzstan; development of soil fertility reproduction system.

- Growing  of high yield crops is impossible without development of scientifically proved crop rotations successfully solving such problems, as preservation of soil fertility, the prevention of soil erosion, plants protection against diseases, insects and weeds, and also substantial increase of applied fertilizer's efficiency, irrigating water and high productive varieties.

- The organic waste processing method by vermiculture is spread wildly. This method allows accelerating of fossil's decomposition, to carry out sanitary-and-hygienic clearing and to receive pure fertilizer – biohumus making positive impact not only on a crop, but also its quality.

- Investigations in Scientific Research Institute of Animal husbandry and pastures are carrying out on a problem: «Development of scientific bases of agricultural animal's genetic resources improvement».
- Large scientific work of last years is deducing of new breed of sheep Kyrgyz mountain merino. Ajkol breed meat-grease of sheep is characterized by the big live weight and adaptation to high mountains conditions.

- The basic directions of researches on pastures are: working out of scientific bases of the organization and management of pastures; creation of sown pastures; improvement of selection work on long-term cereal and bean grasses; creation of high-yielding varieties of leguminous cultures.

- The Veterinary Research Institute carries out researches on a problem: «Development of scientific bases of veterinary preparations biotechnology improvement, which provides health protection of animals» from such dangerous diseases as Bang's diseases, aphthous fever, Siberian ulcer, echinococcosis and a smallpox of sheep.

- Scientific researches in Research Institute of Irrigation is carried out on a complex theme «Development of high technologies, modern technical and software for land reclamation, hydraulic engineering and use of water resources for the purpose of effective conducting agriculture». Schemes of protection of lands from flooding by under ground waters on the base of geofiltrational models are defined.

- **The areas of arid lands** in republic make 40 percent of all arable land. The limiting factor of harvesting of high yield of agricultural crops is an atmospheric precipitation. On such drought areas usually 35 percent of cereal crops and 20 percent of long-term grasses are cultivated.

- The grain fallow crop rotations are the base of rainfed land's efficiency increasing, which the area of fallows should make 20 percent. The fallow field is a source of moisture saving, place of nitrogen accumulation and clarification of soil from weed. Productivity of winter wheat on fallows increases by 5-10 centners/hectare.

- Now researches on studying of crop rotations where leguminous cultures: soya bean, lentil, vetch, peas and check pea serve as alternative to long-term grasses are conducted.
- Proved that in the conditions of moisture sufficient rainfed areas replacement of bare fallow with leguminous cultures is possible. At heavy deficiency of moisture advantage remains behind bare fallow.

- In republic the big work on breeding of drought-tolerant varieties of cereals for rainfed areas is conducted. They are winter wheat varieties: Erythrospermum 760, Railub, Adyr and Kairak, belonging to soft wheat. All these varieties are early-maturing and capable to form an ear before rigid drought.

- The main variety of summer barley on rainfed lands is Naryn 27 which differs by high productivity, drought tolerance and early-maturity. New varieties are Taalay, Bestam and Kylym. These varieties are middle-maturing and drought-tolerant. The protein content in grain is 14-15 percent. Potential productivity on moisture sufficient rainfed areas is 4,5 tons/hectares.

## Proposals

1. It is necessary to expand the International cooperation in the field of agricultural researches within CGIAR. In this plan we had joint long-term experience and created strong base to the further strengthening of mutually advantageous communications. Easing or termination of the International cooperation is death similarly. And we wish to live, yes to live.

2. It is necessary, that all 15 International Centers of CGIAR participated in development and realization of Research Programs for the Central Asia and Southern Caucasus. It is command of time and in a root is met interests neither only of Region nor of the World agrarian science.

3. We are pleased rather with the fact of creation of the Eurasian Center on Food Security in Moscow. We hope that realization of given Agrarian Center's projects will promote the sustainable development of agriculture in the Central Asia and Southern Caucasus.

4. There would be exclusively useful if the International cooperation captures such mandatory cultures of our Region, as cotton, rice and sugar beet. In this respect we positively estimate the initiative of the International Research Rice Institute (IRRI) on involving of our scientists to scientific researches on rice, and also holding of the First International Conference on cotton-growing, on 2-4 October, 2012, in Gorgan, Iran.

5. Mountains occupy the most of territories of the Central Asia and Southern Caucasus. Mountains are special ecosystem, having the own specificity. Not casually say, that «above mountains there are only mountains». Despite of our numerous offers, the International Research Program for our all region under the name «Mountain agriculture» till now is not developed.

6. It is necessary to accelerate process of adaptation of National Researches Systems to new economic conditions and new industrial relations which have really developed in agricultural sector. After all, in the Global competition first of all those countries win which provide a most favored nation treatment for innovative activity.