CRP Dryland Systems

Cluster of activity:

(CA) 4.5 Establish a seed systems platform compatible with existing agro-ecological environments to supply farmers with high quality seed and planting materials so as to improve livelihoods, food security and incomes of smallholders

Action site: Rasht Valley

Reporting Center: **CIP**

Reporting period: **2014**

Outputs:

- Seed multiplication of 14 potato clones from CIP accomplished

Outcomes:

- 3081 kg mini tubers of 14 potato clones produced for planting in 2015

Partners:

- Institute of Horticulture and Vegetable Growing, Tajikistan

Activity details

1. Support to production of mini tubers of potato

To support seed systems platform, new CIP clones have been selected for development of local seed production system. Institute of Horticulture and Vegetable Growing adopted in vitro plants of 14 CIP clones (CIP-397077.16, CIP -392781.1, CIP -390478.9, CIP -397030.31, CIP -397035.26, CIP - 388611.22, CIP - 720090, CIP – 720189, CIP -720188, CIP - 390663.8, CIP -397073.16, CIP - 391180.6, CIP – 397054.3, CIP – 396311.1) under screenhouse condition during the period of May-October, 2014 in Jurgatal district. These CIP clones already tested under soil-climate conditions of Tajikistan during 2010-2013 years and have been recommended for registration.

Institute of Horticulture and Vegetable Growing, 6000 in-vitro plants of 8 clones received from the Institute of Botany, Plant Physiology and Genetics AS RT for production of mini tubers. Planting distance in the first screen house: 25 x 10 cm (40 in-vitro/m2) and in the second screen house: 40 x 15 cm .

Agro-technical and phytosanitarian measures were conducted according to CIP recommendations. Haulm was cut on 10 days before harvesting. Mini tubers have been harvested in the beginning of October, 2014. Harvested mini tubers were divided into three fractions: Large > 55mm, seed size 25 – 55mm and < 25 mm followed by weigh and calculation of each fraction.

3081 KG potato mini tubers have been harvested. CIP-397077.16 - 135 kg, CIP -392781.1 - 120 kg, CIP -390478.9 - 656 kg, CIP - 397030.31 - 139 kg, CIP -397035.26 - 133 kg, CIP - 388611.22 - 156 kg, CIP - 720090 - 249 kg, CIP – 720189- 395 kg, CIP -720188- 56 kg, CIP - 390663.8 - 139 kg, CIP -397073.16 - 362 kg, CIP - 391180.6 – 211 kg, CIP – 397054.3 – 161 kg, CIP – 396311.1 -169 kg. Produced CIP clones will be planted in 2015 for the production of super super elite class potato.

Results:

- All CIP clones show high productivity in average amount 35-45 t/ha.
- The trails confirmed high productivity (45 t/ha) of CIP clone 720189, which is already registered as varieties in Tajikistan named “Surkhob”. Also high productivity (40 t/ha) of CIP clone CIP-397077.16 (registered in Tajikistan name Faizabad) confirmed.
- High quality potato seed material class G1 (mini tubers) have been produced for future multiplication on the smallholders’ land in Jirgatal district.

Outputs:

- 3081 kg Seed potato class G1 (mini tubers) will be planted on up to one hectare on 10 stallholders’ plot (1000 sq.m. per plot). Expected harvest of seed potato in 2015 is 25 ton, enough amount for sowing 8 ha new land.

2. Support to production of seed material from TBS

During last years CIP provided TBS material to 44 smallholders in Garm district, Rasht Valley region. Farmers planted TBS on 2-5 sq.m. plots and harvested potato tubers for future planting in the spring of 2014 year. All selected 44 smallholders planted potato tubers, harvested from TBS in 2013, on own plots, totally 15 ha land has been sown. 44 smallholders harvested 659.18 ton potato in October, 2014. Average yield/productivity of potato was 42 t/he. Harvested 660 ton potato can be used as seed material for 2015.

Two parent lines (M, F) of potato (ts-15, Lt-18) have been planted on the demonstration plots of two farmers in Rasht district. Main goal of the activity was breeding of two potato lines and development of high productive variety. CIP staff teachs the farmers the crossing techniques. 30-40 berries of new line have harvested. TBS stored for future multiplication in 2015. According to 2014 year field trials results the new breed's productivity was 50-83 t/ha.

50 kg seed potato of parent lines (M, F) have been harvested for production of TBS on new smallholders plots.

Results:

– Farmers started use TBS as seed potato production material.
– Crossing techniques of TBS production have been introduced to smallholders land.

Outputs:

- Trough introduction of TBS seed material farmers got the alternative resource for seeds, which is very important in highland, because transportation of TBS needs fewer expanses and small area for storage facility.
- Thought increasing of skills in seed production farmers can use crossing method for improvement of seed material.