INTRODUCTION.

Cotton is an important raw materials of the textile industry, food industry and national defence industry. It is possible to get more than one hundred raw materials from cotton. The stable industrial crops are cotton.

In the economy of Uzbekistan, an important place also belongs to agriculture sectors thereof and the first of all to the cotton growing. Up to forty per cent of agricultural land is used for cotton growing. Plenty of sun and high temperature in summer facilitate the cultivation of such heat-loving crop as cotton in Uzbekistan[1].

Uzbekistan is located in the middle of the Central Asia, between two big rivers of Syrdarya and Amudarya which go to Aral Sea. The climate of Uzbekistan is sharply continental. It is one of the driest areas where a very low precipitation level is accompanied by its uneven distribution all over the Uzbekistan. The yearly precipitation over the most of the country does not exceed 200-300 mm. The lower Amudarya and deserts have the lowest level of precipitation of less than 100 mm a year. The amounts is slowly growing eastwards and south-eastwards of desert plains and sharply raises nearer to mountain regions up to 900-950 mm. Uzbekistan enjoys an abundance of sun. Annual sunshine in Uzbekistan amounts to 2980-3130 hours. The hottest summer month is July. The average temperature in this period 25-35 oC. The summer temperature of 42-47 oC is an usual phenomenon on plains and at foothills of Uzbekistan.

The surface water is also distributed over the territory in a very irregular way. Approximately the two thirds of total territory of Uzbekistan occupied by vast plains have very few sources of water. The soil formation in Uzbekistan is sandy-loam and loamy-sand in cotton cultivation areas.

PROBLEM. Agriculture in Uzbekistan depends mostly on artificial irrigation, that is why the canals and reservoirs are required not only for preservation of oases but also for the development and irrigation of new lands. That was a reason of various canals which are under construction since days until now. Most of the irrigation systems in both places is still flood irrigation with low water using efficiency. Some irrigated areas have water shortage problem during the vegetation period. The surface and ground water go to the low-lying area and finally evaporate. In the other hand, with the excessive irrigation the ground water table is raised up. These course severe salination in the land. In order to solve salinity problem, the washing process is carried out. This does not solve the problem, on the contrary the land is becoming more saline[2].

In addition, the result of excessively irrigated cultivation in both areas, the worsening environmental problem has come up. The water of rivers is transferred to other places, thus there is no enough water supply for Aral Sea in Uzbekistan the water level has declined by tremendously and the shore line has passed away by tens of kilometers. Some rivers are become seasonal rivers. All this reduces the vegetation of the area, expand the desert and create many complications.

Cotton production depends upon optimum availability of water throughout the crop growth period. It is important to rationally use limited water resources by adopting appropriate irrigation technologies that not only increase cotton yield per unit area, but also per unit of water use.

The basic concept of the drip irrigation method is to supply an amount of water needed by the plant within a limited volume of the soil, as often as needed. Drip irrigation can improve the irrigation efficiency. Research has indicated 40 to 70% saving in water and 10 to 100% increase in yield are possible depending on the crop under irrigation [].
plants. Each plot will be irrigated through two laterals set 1.8 m apart (2 rows lateral) and spacing of 1 m between drippers (20 plants/dripper). There is a population of 4,000 plants in each plot [4].

According to the evapotranspiration of cotton field, under drip irrigation system, the necessary water supply is 600 mm over 100 days, a 6 mm daily consumption. Based on the nutrient requirement of cotton, the doses of 220 kg N/ha, 132 kg P₂O₅/ha and 77 kg K₂O/ha for 110,000 plant will be applied during the vegetation period. About 20 per cent of each will be given before sowing, the rest of them will be supplied through the irrigation water in accordance with experimental treatments.

The amount of water supply per plot will be calculated as following:
6 mm/day = 60 m³/ha/day = 60,000 liter/ha/day
60,000 liter/ha/day / 110,000 plants/ha = 0.55 liter/plant/day
0.55 liter/plant/day x 4,000 plants/plot = 2,200 liter/plot/day

The amount of fertilizer supply per plot will be calculated as following:
1. Nitrogen:
220 kg/ha / 110,000 plants/ha = 2 g/plant
2 g/plant / 100 days = 0.02 g/plant/day
0.02 g/plant/day / 0.55 liter/plant/day = 0.0364 g/liter
0.0364 g/liter = 36.4 ppm

2. Phosphorus
132 kg/ha / 110,000 plants/ha = 1.2 g/plant
1.2 g/plant / 100 days = 0.012 g/plant/day
0.012 g/plant/day / 0.55 liter/plant/day = 0.0218 g/liter
0.0218 g/liter = 21.8 ppm

3. Potassium
77 kg/ha / 110,000 plants/ha = 0.7 g/plant
0.7 g/plant / 100 days = 0.007 g/plant/day
0.007 g/plant/day / 0.55 liter/plant/day = 0.0127 g/liter
0.0127 g/liter = 12.7 ppm

According to these calculations in Table 1 shows the experimental scheme. **Plant sampling.** Samples of 25 plants will be taken from the central four rows and the following parameters will be recorded:

- a. date of emergence;
- b. number of plant population;
- c. phenological measurement:
  - plant height rate (June 1, July 1, August 1 and September 1)
  - number of true leaves (June 1)
  - number of sympodials (July 1, August 1 and September 1)
  - number of buds (July 1)
  - number of flowers (July 1)
  - number of green bolls (August 1 and September 1)
  - number of open bolls (August 1, September 1 and October 1)
- d. weight of 25 bolls seed cotton
- e. yield of per hectare

**Soil sampling:** In order to determine followings, soil samples will be taken from 10 cm depth layers of soil profile, till 150 cm deep, before sowing and after harvesting.

- a. rate of nutrient elements (humus, nitrate nitrogen, labile phosphorus and exchange potassium),
- b. water conductivity
- c. volume and specific weight

**Analysis of data:** The data will be analyzed using a two-way ANOVA (cycle of irrigation and rate of fertilizer being the two factors). Mean comparison will be done using DAM (dispersional analysis method).

**RESULTS.** Based on the results of research works carried out in the sandy-loam and loamy-sand in cotton cultivation areas for the study using drip irrigation on the background of various norms of fertilizers obtained the following results:

- to obtain high yields in the cultivation of cotton with drip irrigation is necessary irrigation rate 11 m³/plot, during irrigation cycle after 5 days.
- the optimum fertilizer rate was N – 0.0364 g/liter, P₂O₅ – 0.0218 g/liter, K₂O – 0.0127 g/liter, in which obtained the highest yield to 44.2 centner per hectare.

**CONCLUSION**

1. Establish optimal drip irrigation cycle and nutrient rate for cotton growing in irrigated areas of Uzbekistan.
2. By using drip method saving considerable amount of irrigation water up to 50%.
3. Lessening the stress on scarce water resources and making betterment in ecological condition.
4. By using drip method increasing crop yield and improving the quality of cotton.

**REFERENCES:**