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## EFFICIENCY OF MIXED SOWING OF MAIZE WITH FORAGE BEET IN IRRIGATED MEADOW SIEROZEM SOILS OF UZBEKISTAN

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### ABSTRACT

*It has been established that one of the most important ways to increase the productivity of animal husbandry is to create a high fodder base. An important element of increasing the rational use of irrigated land in fodder production is the combined sowing of fodder crops. It was found that with combined sowing, the total yield of forage crops always increases the yield from clean sowing. With clean sowing of fodder beets, the yield of root crops was 860 c / ha, the fodder unit from one hectare of the area was 1720 k.kal. With mixed sowing of maize with fodder beet, the yield of maize grain was 100 c / ha, stem 240 c / ha, fodder beet 720 c / ha, and the total fodder unit from one area was 36200 k.kal.*

**KEYWORDS:** *Mixed Sowing, Absolute Sowing, Fodder Crops, Irrigated Lands, Fodder Balance, Fodder Unit, Yield, Quality, Rational Use.*

## INTRODUCTION

Uzbekistan is located in the dry subtropical zone of Central Asia. Potential crop yields, including forage crops, are high. Under irrigated conditions in this region, 2-3 harvests from forage crops can be obtained per year. However, the real yield of forage crops is very low. This is due to the low level of applied technologies for the cultivation of forage crops, the sowing of low-yielding plants and varieties, the use of traditional technologies.

In recent years, with an increase in the population in the republic, the population's demand for food products, including livestock products, has increased. However, the efficiency of irrigated land in fodder production is very low, which has led to a sharp increase in the purchase price of meat and milk. Therefore, the study of increasing the yield of forage crops is one of the most pressing problems.

In connection with this, increasing the yield of forage crops, providing cattle with forage is one of the most pressing problems. This circumstance posed the task of the republic's agricultural scientists to look for new innovative ways of intensive use of irrigated and non-irrigated wedges in the republic. Proceeding from this, one of the ways of further intensification of agriculture is the introduction of mixed crops of forage crops into the system of irrigated land use [1].

In the research works of IV Massino, the total leaf area and the scientific foundations of the formation of a biological yield were studied during the joint sowing of maize with sorghum [5, 6].

In most of the above experiments, the value and technology of mixed sowing of cereals and legumes were studied. Mixed sowing of maize and legumes provides high-quality roughage and concentrated forage. However, scientific work on the study of mixed sowing of maize with root and tuber crops has not previously been carried out. There is very little scientific evidence in this area. Proceeding from this, one of the ways of further intensification of agriculture is the introduction of combined crops of crops into the system of irrigated land use [2, 3].

In this regard, our research work in the aspect of studying the combined sowing of several crops is aimed at enhancing the educational and production potential of rural farmers in the effective use of irrigated land in the conditions of our republic [4, 7, 8].

## MATERIALS AND METHODS

Experiments to study the characteristics of the growth and development of maize and fodder beets with their combined sowing were carried out in the experimental section of the Tashkent State Agrarian University. The soils of the experimental plot are typical sierozem soils of old irrigation.

Field and laboratory research, records, and phenological observations were carried out following generally accepted methodological guidelines. The experiment was set up, the statistical processing of the yield data was carried out by the method of analysis of variance according to the method of B.A. Dospekhov (1985)

During the growing season, we carried out one feeding of the plants at the rate of 70 kg/ha of ammonium nitrate (I.s). The predecessor was perennial alfalfa. During the growing season, six vegetation irrigations were carried out with a total consumption of an annual irrigation rate of

3000 m<sup>3</sup> / ha. During the growing season, biometric records and observations of plant growth and development were carried out.

## RESULTS AND DISCUSSION

As our observations showed, maize seeds gave mass shoots on the 5<sup>th</sup> day from sowing, fodder beets - on the 6<sup>th</sup> day. During the praxis period, the maize plants were taller than the beet plants.

**TABLE 1 INFLUENCE OF MIXED SOWING OF MAIZE WITH FODDER BEET ON THE FORMATION OF THE TOTAL YIELD AND FODDER UNIT**

№	Options	Grain harvest maize, c/ha	Stem harvest maize, c/ha	Урожай crop beetroot, c/ha	root-	Total unit, k.kal	fodder
1	Maize (hybridF <sub>1</sub> )	110	260			23840	
2	beetroot			860		17200	
3	Sowing beetroots after maize	110	260	380		31440	
4	Mixed sowing of maize and beetroots	100	240	720		36200	

Studies have shown that in the initial phases of growth and development, that is, before the appearance of 5-6 true leaves in the plant, it was relatively slow. Which allowed the formation of root crops in beets. And later the growth and development of maize accelerated, which led to the shading of fodder beets, which negatively affected the growth and development of fodder beets. Harvesting of maize grain was carried out on June 20<sup>th</sup>. After cleaning grain of maize, the intensity of growth and development of fodder beet increased sharply.

Data on the positive effect of mixed sowing of maize with fodder beets on the formation of the total yield are shown in Table 1.

It was found that with mixed sowing of maize and fodder beet, the productivity of individual crops is slightly inferior to that of pure sowing. However, with mixed sowing, the total yield per unit area significantly exceeds that of the control variant.

The above data show that with the clean sowing of maize, the grain yield was 110 c / ha, and the stem yield was 260 c / ha. With pure sowing of fodder beets, the yield of root-crops was 860 c / ha.

When re-sowing fodder beets after maize, the yield of maize grain is 110 c / ha, the yield of the stem is 260 c / ha, the yield of repeated beets is 380 c / ha.

With mixed sowing of maize with fodder beet, the yield of maize grain was 100 c / ha, stem 240 c / ha, fodder beet 720 c / ha.

**TABLE 2 FORMATION OF A FEED UNIT WITH A SEPARATE AND MIXED SOWING OF FORAGE CROPS**

№	Options	Roughage feed, k.kal	Juicy feed, k.kal	Concentrated feed, k.kal	Total feed unit, k.kal
1	Maize (hybrid F <sub>1</sub> )	7960	-	14740	22700
2	beetroot	-	17200	-	17200
3	Sowing beet roots after maize	7960	7600	14740	30300
4	Mixed sowing of maize and beetroots	7200	14400	13400	35000

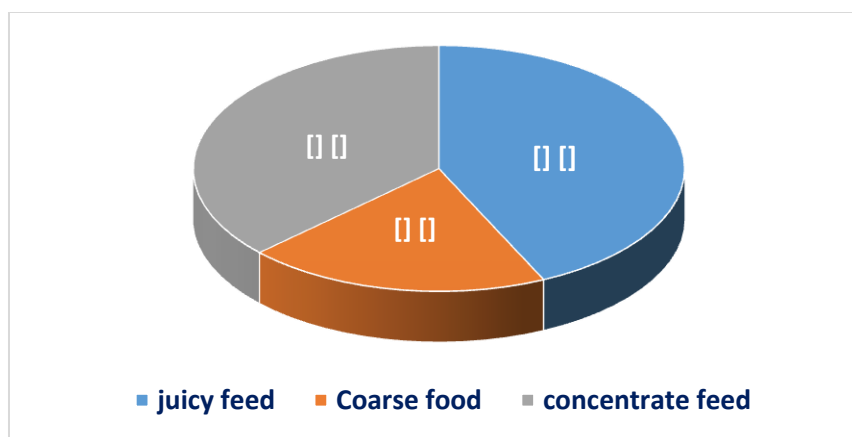
In determining the needs of farm animals for feed, in creating a feed balance, a certain value is represented by a feed unit. Data on the effect of mixed sowing on the formation of a fodder unit according to the variants of the experiment are presented in table 2

In the field experiment, the lowest indicator for a fodder unit per hectare, 17200 c.u., was observed with pure sowing of fodder beets. With pure sowing of maize, the fodder unit obtained from one hectare of the area was 22700 c.u. In the third option, that is, with repeated sowing of beets after harvesting maize, this figure was 30300 c.u.

A comparatively high indicator for the production of a feed unit of 36200 c.u per hectare was noted with mixed sowing of maize with fodder beets.

With mixed sowing in the initial periods of development, shading of beets by maize was observed, which led to a slowdown in the growth and development of beets, however, after the harvest of maize in the middle of summer, the development and formation of the crop of root crops again accelerated. With the combined sowing of two crops, it was found that this method contributes to an increase in the total biomass at the end of the growing season.

With mixed sowing of forage crops, not only the quantity and quality of forage but also the ratio of feeds is of great importance. Data on the ratio of feeds for mixed sowing are shown in Figure 1.



**Figure 1.** Feed content for mixed sowing of maize with fodder beets, %.

Thus, thanks to the combined sowing of maize and fodder beets, it is possible to significantly increase the yield of irrigated land in the conditions of the republic by obtaining all types of fodder. Crop seeding is a new way to create a solid forage base for livestock production and get additional valuable products in the future.

### CONCLUSIONS

Relatively low indicators of yield and quality of feed were noted in the control variants, that is, with pure sowing of maize and fodder beets. With pure sowing of fodder beets, the yield of root crops was 860 c / ha, the fodder unit from one hectare of the area was 1720 c.u.

When re-sowing fodder beets after maize, the yield of maize grain is 110 c / ha, the yield of the stem is 260 c / ha, the yield of repeated beets is 380 c / ha. The total fodder unit from one hectare of the area was, respectively, 31440 c.u.

With mixed sowing of maize with fodder beet, the yield of maize grain was 100 c / ha, stem 240 c / ha, fodder beet 720 c / ha, and the total fodder unit from one area was 36200 c.u.

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