
**Net Productivity Of Photosynthesis Of Soybean Plant Varieties In Conditions Of
Moderately Saline Soils**

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Annotation: The optimal size of the leaf area of most field crops, grown for grain, is in the range of 30-40 thousand m²/ha. The reason for the formation of a small leaf area in 2014-2016 is the absence of sediments in a particular growing season.

Keywords: conditions, established, growing season, field crops, grown for grain, legumes, optimal conditions.

The number of leaves and the area of the assimilation surface of soybean plants when grown in a dry hot climate in Uzbekistan has not been studied enough. It is established that the number of leaves in different varieties of soybeans although is a genetically determined indicator, in different sowing patterns their number varies [1]. [Leshenko L.K. 1978].

The study showed that in the early phases of development before the budding phase, the number of leaves varies slightly depending on the varieties, since early-maturing varieties have more leaves at the beginning of the growing season, and in further phases the number of leaves decreases. At the phase of end of flowering, the number of leaves gradually stabilizes. The optimal size of the leaf area of most field crops, grown for grain, is in the range of 30-40 thousand m²/ha. For legumes, this value can be much larger [2]. [Myakushko Yu.P.1983]

According to D.Y.Yormatova [3] [2017], soybean varieties, forming in the favorable years in the conditions of Uzbekistan the total leaf surface of 58-68 thousand m²/ha, turn out to be the most fruitful and yield 20.0-24.5 centner /ha of seeds

In our experiments, the maximum leaf area formed in soybean crops in 2014 and 2016 was, by the majority of the cultivated varieties, significantly lower than the same indicator for 2014-2016. Thus, in middle-late-maturing varieties, it amounted to 30-50 m²/ha, in middle-maturing - about 30, and in early-maturing from 20 to 30. In previous years, these indicators were 1.2-1.5 higher

The reason for the formation of a small leaf area in 2014-2016 is the absence of sediments in a particular growing season. At the same time, the mid-early-maturing varieties intensively form the photosynthetic-active surface at the beginning of the vegetation period and it quickly reaches its maximum value by the beginning or middle of July, since before this time the varieties of these plants could use the winter-spring moisture reserves of the arable horizon . In the middle and the end of July, the maximum leaf area formed in middle-maturing varieties - Nafis, Slavia. The most mid-late maturing and mid-maturing varieties completed the growth of the photosynthetic surface by the middle of August-early September

A high yield of soybean seeds can be obtained only under favorable conditions for leaf formation, which are created when a plant is continuously supplied with moisture during the whole growing season. It has been established that the lack of moisture does not compensate its excess in one of the periods in the subsequent phases of development. Thus, the lack of moisture during the period of raising and laying of reproductive organs retards the growth of plants, contributes to the low attachment of beans, and reduces the yield of seeds. At the same time, the relatively early growth of leaves, with excessive moisture supply, leads to a decrease in the lightness of plants at the beginning of their growth, which adversely affects the number of forming beans and, consequently, the productivity of plants

Soil moisture, as our studies have shown, reduced from raising to bean formation up to 40% of full field moisture capacity and increased during formation to 80% is more favorable for the formation of reproductive organs. Therefore, with a relatively small leaf surface formed by soybean varieties in 2015 due to the drought in the first half of the vegetation period, seed productivity in many middle and middle-late maturing varieties was higher than in previous years.

Great practical interest has the question of the relationship between the indicator of the leaf surface of soybean and its seed productivity. To achieve a high yield of seeds, it is necessary not only to ensure the formation of a large area of leaves, but also to create conditions for its active photosynthetic activity.

A change in the size of the leaf surface without damage to the crop can be quite large. Thus, according to the Parvoz variety, with the same sowing methods, but different seeding rates, the seed yield changed insignificantly, while the difference in the leaf surface area in some years reached 30-35 thousand m²/ha.

Optimal conditions for the photosynthesis of soybean plants are created with the fastest possible growth of the leaf surface at the beginning of vegetation to the maximum value and maintaining it for a long time.

Middle-late-maturing varieties of the Dustlik type had the greatest photosynthetic potential during the years of research. However, in these varieties, the leaf surface forms a long time and reaches its maximum value only by the beginning of September (see table). On the other hand, early-maturing varieties form the maximum leaf area, but the work of such a photosynthetic apparatus is short and the photosynthetic potential of such varieties is the lowest.

In the crops of mid-maturing varieties, the photosynthetic potential due to the rapid growth of the leaf surface at the beginning of vegetation until the end of August practically does not diminish the potential of air temperature; the leaves together turn yellow and fall off. The leaf surface formed by these varieties to the beginning of the formation of beans, for a long time remains at the same level. The outflow of plastic masses takes place at the optimum for this process the air temperature, and leaves together turn yellow and fall off. A further decrease in average daily air temperatures, detrimental to the development of more middle-late varieties, is no longer dangerous for crops of middle-maturing varieties that have fully formed the crop of seeds.

Thus, according to the growth dynamics of the photosynthetic-active surface, by the duration of its productive work in the conditions of the Bukhara region of Uzbekistan, middle-maturing soybean varieties with a vegetation period of 110-120 days are in a more favorable position (see table)

**Net productivity of photosynthesis (g/m² per day) of soybean varieties by periods of
growth and development**

Variety	Year	Beginning of May - middle of May	Middle of May - middle of June	Middle of June - beginning of July	Beginning of July - end of July	End of July - beginning of August
	2014	3.56	3.82	4.25	3.45	1.40
Parvoz	2015	3.75	3.98	4.60	3.70	1.56
	2016	3.15	3.45	4.14	3.10	1.22
	Average	3.48	3.75	4.33	3.41	1.39
	2014	3.80	4.35	4.68	3.88	2.67
Dustlik	2015	3.90	4.57	4.80	3.96	2.56
	2016	3.20	4.11	4.19	3.28	2.13
	Average	3.63	4.34	4.55	3.70	2.45
	2014	3.17	4.20	4.26	3.21	2.10
Nafis	2015	3.10	4.28	4.43	3.35	2.38
	2016	3.45	4.65	4.67	3.77	2.64
	Average	3.24	4.38	4.45	3.44	2.37
	2014	3.90	3.96	4.31	2.70	2.94
Slaviya	2015	3.04	4.30	3.29	1.23	0.62
	2016	2.20	1.86	3.51	2.23	1.10
	Average	3.04	3.37	3.70	2.05	1.55
	2014	2.78	3.68	2.30	1.21	1.25
Olimpiya	2015	2.90	5.47	2.82	1.32	1.67
	2016	2.89	3.85	3.63	3.31	1.56
	Average	2.85	4.33	2.91	1.94	1.49

Bibliography:

1. Yormatova D.Ye. Soybean in Uzbekistan. Tashkent Ed. Science and Technology 2017.34-56pp.
2. Leshchenko L.K. Soy. Kolos, Moscow. 1978 256 -pp.
3. Myakushko Yu.P. Soya Kolos, Moscow 1983. 275- pp.