

'Cotton - Key Factors for Sustainable Production'

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The correct combination of varieties, machinery, and technology is of particular importance for cotton cultivation. Therefore, despite the significant increase in acreage over the last two years, examples of economically successful production are extremely few. This has already begun to lead to a differentiation of producers into two groups. The first relies solely on the specific per-hectare support to obtain a net income. The second group of producers is the one for which the specific support was introduced at the EU level. These are precisely those farmers who need support to supplement the main income from the crop to profit levels similar to those from other field crops.

Historically, cotton as a crop in our country has occupied extremely variable areas in size – from 7000–8000 decares at the beginning of the 19th century, to the impressive 1,800,000 decares in 1953 and a subsequent decline to a new low of about 3000 decares in 2014. A review of the reasons for these extreme fluctuations

shows that the crop thrives in periods of special support at the national level and declines drastically in its absence.

Although climatic conditions favor the development of this southern and biologically highly drought-resistant crop, it is clear that other factors determine its success or failure as a crop in our country. However, its existing potential was recognized as early as the beginning of the 20th century, when (in 1932) a specialized State Agricultural Experimental Station with seed production was established in the town of Chirpan, later renamed the Institute of Cotton and Cereal Crops.

As a result of the long-term work of this institute, the IRGR "K. Malkov" in Sadovo and the Agricultural University in Plovdiv, dozens of cotton varieties have been created over the years, some of which have spread far beyond the country's borders (M. Bozhinov and B. Bozhinov, 2010). The efforts of dozens of breeders, agrotechnicians, and plant protection specialists have led to the creation of a specialized group of varieties that (in combination with good agrotechnics) are capable of providing high yields under the conditions of our country. Under suitable conditions and agrotechnics, yields of over 220 kg/decare have been obtained in production conditions, while under experimental conditions and with the possibility of irrigation, yields can reach over 450 kg/decare (Spasova et al., 2010).

As already indicated, ***one of the main factors for the successful spread of the crop in our country turns out to be the availability of specific support for its production.*** This fundamental problem became particularly acute in the period after 1990, during which the area shrank from over 150,000 decares to under 3000. The reasons for this were both the existence of opportunities for significantly more efficient production of the crop outside the EU (through the use of genetically engineered varieties) and the access of competitive producers in the EU to crop-specific subsidies.

Approaches to solving both main problems were proposed by scientific teams with the participation of the author of these lines. Thus, even before our country's accession to the EU, the first Bulgarian biotechnological candidate variety was developed and submitted for testing in the IASAS system, the creation of which aimed to solve one of the main problems of the crop – the fight against early weed infestation. Unfortunately, as a result of the country's accession to the EU, the registration and distribution of this variety became impossible, which is why its development (as well as that of other similar ones) was discontinued. On the other hand, the issue of placing Bulgarian producers on an equal footing with other farmers from the EU was raised (Bozhinov and Bozhinov, 2010). And although the problem received a partial solution over the years (through access to the *De minimis* program from the previous programming period of the CAP), these levels of support proved extremely insufficient to maintain producer interest.

Gaining access to support identical to that of other European producers became possible with the start of the new CAP programming period – from 2015, when *Regulation (EU) No 1307/2013* gave Bulgaria the right to provide the specific per-hectare payment for cotton. The amount of this specific payment is set in the Regulation at 584.88 euros/ha in 2015 and 649.45 euros/ha for 2016 and subsequent years. The conditions for receiving this specific payment are set out in Art. 17 of *ORDINANCE No. 3 of 17.02.2015 on the conditions and procedure for applying the direct payment schemes* and are briefly expressed in the requirements: (1) to use varieties

registered in the Variety List of the Republic of Bulgaria or in the European Catalogue; (2) to achieve a minimum sowing density of 8000 plants/decare; (3) to provide a signed purchase contract by 01.12. In Regulation (EU) No. 1307/2013 itself, there is one additional condition included, namely – the per-hectare amounts are valid only up to reaching the so-called "base area", which for our country is set at 3342 ha. If the area meeting the conditions for aid in a given year exceeds the set base area, the specified amount is reduced in proportion to the excess of the base area.

With the emergence of the possibility for specific support of a significant amount, the interest of Bulgarian producers in cotton increased sharply and already in 2015 the area reached over 27,000 decares. In 2016, the declared areas already exceeded 51,000 decares, which means that the envisaged levels of support are extremely attractive to farmers. On the other hand, however, this also means that due to the exceeding of the base area, the amount of specific aid per hectare of cotton, instead of increasing, will be reduced according to the requirement of the Regulation. The exact amount for 2016 is yet to be determined after the SFA concludes the processing of data on the eligible areas for the crop, but it is already clear that this amount will be significantly lower than the previous year.

This state of affairs creates the need for farmers to approach very carefully the decision of whether and how much area to sow with cotton in 2017. At first glance, there are a number of prerequisites for the crop to continue to spread successfully. These include the availability of a sufficient number of Bulgarian varieties registered in the national variety list (18), as well as in the *European Catalogue of Field Crops* (over 180 more). Another important prerequisite is the availability of sufficiently modern machinery that can easily be adapted (e.g., seeders, cultivators, etc.), and machinery that can be purchased at relatively low prices from neighboring Greece.

However, the very fact that farmers in neighboring Greece have drastically reduced cotton acreage in recent years should put producers on alert. Conditions in the two countries are sufficiently different that direct comparisons cannot be made, but the reaction of Greek farmers is an indication that things are not so simple.

A very important example in this regard is the rich diversity of varieties. Although at first glance almost endless, it is largely apparent, since the varieties adapted for actual cultivation under the conditions of our country are an extremely limited circle. Since the beginning of the changes in our country, attempts have been continuously made to introduce foreign varieties – both from Greece, Turkey, and the USA – but all such attempts so far have failed. Incidentally, relatively satisfactory results have been obtained mainly with Greek varieties, in the creation of which an older generation of Bulgarian ones participated. That is why it is very important when selecting varieties for cultivation that producers (especially those who are just getting acquainted with the crop) turn to truly qualified specialists for help and avoid simply accepting information available on the internet or from random sources.

This advice is valid both regarding the selection of the varietal composition and the selection of technology (and the corresponding technological equipment) for cultivating the crop. For example, the widely practiced worldwide cultivation with row spacing over 85 cm has been tested many times in our country and has always proven its inefficiency. The same applies to a number of growth regulators and pesticides, whose recommended

applications under irrigated and non-irrigated cultivation conditions are substantially different and accordingly rarely applicable for our country.

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cultivation. Therefore, despite the significant increase in acreage over the last two years, examples of economically successful production are extremely few. This has already begun to lead to a differentiation of producers into two groups. The first relies solely on the specific per-hectare support to obtain a net income. Although in 2015 this led to positive results, already in 2016 things could turn around for them depending on the level at which the support is determined, i.e., the approach of this group of producers (we will define them as "subsidy-dependent") is highly unstable due to the action of purely market mechanisms – their number will increase until the amount of the subsidy falls below the necessary minimum funds for creating and maintaining a crop with the mandatory minimum density.

The second group of producers is the one for which the specific support was introduced at the EU level. These are precisely those farmers who need support to supplement the main income from the crop to profit levels similar to those from other field crops. The approach of these producers is much more sustainable, as it relies on combining increasingly efficient production with the additional support from the EU. It is these producers who will be able to continue cotton production even after the end of the current CAP, when (as is already becoming clear) the overall levels of support for farmers will decrease, and the amount of specific support for cotton (and whether there will be any at all) will still be subject to debate.

In this context, it is particularly important to use the support available until 2020 to establish the correct combinations of varieties, machinery, and cultivation technology for each farm.