

STUDY ON THE BEHAVIOR OF SOME SUNFLOWER HYBRIDS CULTIVATED AT FUNDULEA AGRICULTURAL RESEARCH COMPANY IN 2024

Danil-Marian STANCIU¹, Maria OBADĂ¹

(1) Fundulea Agricultural Research Company, 56 Muncii Street, Fundulea, Călărași county, Romania

INTRODUCTION

This study aimed to assess the yield potential and yield components of the candidate sunflower hybrid HS-FSP-1023 in relation to reference hybrids within the analyzed region. The research was carried out in the breeding section of the Agricultural Research Society of Fundulea.

MATERIALS AND METHODS

Trials were conducted in Southern Romania—Fundulea (Călărași county).

Nine sunflower hybrids were tested: HS-FSP-1023, HS-CC-1/24, HS-CC-2/24, AROMATIC, P64LE99, ANDRADA, FD15E27 (Expres technology) and SURIA, FD15CL44 (Clearfield technology).

Comparative parameters measured included the number of achenes per head, weight of achenes per head and yield.



Pictures from the experimental field, Fundulea 2024

RESULTS AND DISCUSSIONS

Results on the number of achene and their weight per head

The climatic conditions of 2024 led to a reduction in plant height, primarily due to a decrease in the internode length between leaves, while the total number of leaves remained unaffected. However, the most significant impact was observed on the Thousand Kernel Weight (TKW), which directly contributed to a reduction in seed quantity/head.

The comparative analysis of achene production (both number and weight/head) among various sunflower hybrids is presented in the first table. Among the evaluated hybrids, AROMATIC demonstrated the highest achene number, with a total of 1389 achenes/head, followed closely by HS-FSP-1023, which recorded 1367 achenes/head. In contrast, P64LE99 exhibited the lowest achene number, with only 1008 achenes/head. In terms of achene weight per head, HS-FSP-1023 recorded the highest value at 51,97 grams, showcasing its superior performance in weight production. On the other hand, SURIA demonstrated the lowest achene weight per head, at 26,42 grams, highlighting a significant difference in performance across the hybrids.

The number of achene and their weight per head, mean and CV

Hybrid	No. achenes / head	Achene weight/head (g)
HS-FSP-1023	1367	51,97
HS-CC-1/24	1193	32,95
HS-CC-2/24	1088	39,72
AROMATIC	1389	40,3
P64LE99	1008	45,38
SURIA	1100	26,42
ANDRADA	1154	38,79
FD15E27	1042	31,9
FD15CL44	1288	38,13
Mean	1181	38,40
CV(%)	11,77	19,618

The higher CV% values for achene weight per head suggest significant variability and reduced stability for this characteristic. These findings emphasize the importance of further exploring the genetic and environmental factors affecting achene weight and their potential impact on agricultural strategies designed to enhance both traits for greater yield stability.

Results on oil yield

The analysis of yield data, indicates that the average yield across the evaluated hybrids was 1727,8 kilograms per hectare, serving as a baseline for comparison. Among the hybrids, HS-FSP-1023 demonstrated the highest yield, achieving 2338,65 kilograms per hectare, which represents a significant increase of 35% relative to the experimental average. Conversely, SURIA exhibited the lowest yield, producing 1188,9 kilograms per hectare, reflecting a notable decrease of 31% compared to the mean yield for the experiment.

Mean yield and relative yield

Hybrid	Yield (kg/ha)	Relative yield
HS-FSP-1023	2338,65	135%
HS-CC-1/24	1482,75	86%
HS-CC-2/24	1787,4	103%
AROMATIC	1813,5	105%
P64LE99	2042,1	118%
SURIA	1188,9	69%
ANDRADA	1745,55	101%
FD15E27	1435,5	83%
FD15CL44	1715,85	99%
Mean	1727,8	100%

CONCLUSIONS

The results of this study demonstrate that the sunflower hybrids evaluated are well-adapted to the specific pedoclimatic conditions of Fundulea, emphasizing the importance of hybrid selection for maximizing agricultural productivity. Among the tested hybrids, HS-FSP-1023 showed exceptional performance, recording the highest achene weight per head and seed yield per hectare, outperforming the experimental average by significant margins. This highlights its potential as a reliable hybrid for achieving high productivity under similar agronomic conditions.