

## INFLUENCE OF SOWING DATES AND NORMS ON SEED QUALITY OF CAMELINA SATIVA VARIETIES

**Zukhriddinov Mukhriddin Rakhmon ugli** – PhD student of department of  
Plant Science and Oil Crops, Tashkent State Agrarian University

**Khayrullaev Sardor Shamsiddin ugli** - Doctoral student (DSc) of  
department of Plant Science and Oil Crops, Tashkent State Agrarian University

### ABSTRACT

The article presents the effect of different sowing dates and norms of camelina sativa (*Camelina sativa* L.) varieties on the oil content of seeds. According to this, it was found that when camelina sativa plants were planted at different dates and norms, the oil content of seeds decreased with increasing sowing norm.

**Keywords:** sowing dates, sowing norms, Karat, Penzyak, Kristall, seed quality, oiliness.

### INTRODUCTION

Camelina (*Camelina sativa* L.) is an oilseed crop belonging to the Brassicaceae family, and in recent years, there has been a trend to revive this ancient crop, which is early maturing, drought and heat tolerant, low susceptibility to diseases in arid regions, and is less susceptible to pests [1, 2]. In addition, its seeds have a high yield - up to 2.5 t/ha, contain 40-46% drying oil, and its oil can be used for various purposes [3, 4]. The seeds are used to produce an oily meal, which is used as animal feed. 100 kilograms of meal contain 115 nutritional units [7]. This crop is a relatively cold-resistant plant. In the early stages of growth and development, it tolerates short-term spring and autumn frosts well [5, 6]. Camelina sativa can grow in a variety of soil and climate conditions, does not require extensive use of pesticides, is resistant to frost and drought, and ripens early (much earlier than cereals). Early ripening is an important advantage, as it allows for reduced pressure during harvest.

### METHODS AND MATERILAS

Our research was conducted in 2022-2024 in the conditions of typical sierozem soils of the Tashkent province, and the effect of sowing dates and norms on seed quality of camelina sativa (*Camelina sativa* L.) varieties during the growing season was studied. In our research, sowing rates of camelina sativa in autumn, spring and summer were tested at 4.0, 6.0, 8.0, 10.0 million units/ha.

These field experiments included 20 variants, each of which occupied an area of 28 m<sup>2</sup>, of which 14 m<sup>2</sup> was taken into account. They were carried out in four iterations.

The research was conducted in field and laboratory conditions, with field experiment layout, calculations and observations based on the “Methods of

conducting field experiments”, and plant analyses based on the “Methodology of state variety testing of agricultural crops” [9, 10, 11].

In the experiment, the “Kristall”, “Karat” and “Penzyak” varieties of camelina sativa (*Camelina sativa* L.) were sown in the third decade of October in the autumn, in the first decade of March in the spring, and as a repeated crop in the third decade of June at a rate of 4.0, 6.0, 8.0 and 10.0 million germinating seeds per hectare, to a depth of 1.5-2 cm.

## RESULTS AND DISCUSSION

*Camelina sativa* is a plant that retains a high oil content in its seeds. The amount of oil in the seed depends on the variety, the biology of the variety, but cultivation technology can change the amount of oil in the seed. The amount of oil was affected by the sowing dates and norms. According to the description of the camelina sativa varieties, the Kristall variety contains 38-39% oil, the Karat variety contains 40-41%, and the Penzyak variety contains 38-40%.

The data obtained from the experiments are presented in the table below (Table 1). It is determined that in all three terms, an increase in the sowing rate leads to a decrease in the amount of oil in the seed, which is due to the large number of seedlings and insufficient feeding area, and the amount of oil decreases compared to the previous norm. When camelina sativa varieties were sown in the autumn, the seed oil content of the Kristall variety at the lowest sowing rate was 45.2%, and at the sowing rate of 6 million seeds/ha, the oil content decreased to 44.5%, at the sowing rate of 8 million per hectare to 44.3%, and at the highest sowing rate to 44.2%. The seed oil content of the Karat variety at the lowest sowing rate was 43.2%. At the sowing rate of 6 million seeds per hectare, it was 43.0%, in the variants where 8 million seeds per hectare were planted, the oil content was on average 42.8%, and at the highest sowing rate, this indicator was 42.7%. As the sowing rate increased, the oil content decreased to 0.2-0.4 and 0.5%. The same pattern was repeated for the Penzyak variety. At the minimum sowing rate, the oil content in the seed was 44.7%.

**Table 1**

### Influence of sowing dates and norms on seed quality of camelina sativa varieties

No	Options	Oil content in 10 gramms sample			Oilines, %
		1 <sup>st</sup> repetition (gr)	2 <sup>nd</sup> repetition (gr)	Avarage (gr)	
Autumn period					
Kristall variety					
1	4 mln	4.53	4.51	4.52	45.2
2	6 mln	4.46	4.44	4.45	44.5
3	8 mln	4.46	4.44	4.43	44.3
4	10 mln	4.40	4.40	4.42	44.2
Karat variety					
5	4 mln	4.38	4.34	4.32	43.2

6	6 mln	4.34	4.30	4.30	43.0
7	8 mln	4.26	4.26	4.28	42.8
8	10 mln	4.20	4.26	4.27	42.7
Penzyak variety					
9	4 mln	4.43	4.51	4.47	44.7
10	6 mln	4.40	4.44	4.42	44.2
11	8 mln	4.30	4.32	4.31	43.1
12	10 mln	4.25	4.30	4.27	42.7
Spring period					
Kristall variety					
13	4 mln	4.38	4.40	4.38	43.8
14	6 mln	4.36	4.39	4.37	43.7
15	8 mln	4.35	4.34	4.36	43.6
16	10 mln	4.23	4.33	4.28	42.8
Summer period (as secondary crop)					
Kristall variety					
17	4 mln	4.58	4.60	4.56	45.6
18	6 mln	4.52	4.50	4.54	45.4
19	8 mln	4.44	4.48	4.46	44.6
20	10 mln	4.26	4.30	4.28	42.8

It was found that when the sowing rate was 6 million seeds per hectare, the oil content in the seeds was 44.2%, in the variants where 8 million seeds per hectare were sown, the average oil content was 43.1%, and at the highest sowing rate this indicator was 42.7%. As the sowing rate increased, the oil content decreased to 0.5-1.6 and 2%.

The same pattern was repeated in the Crystal variety of camelina sativa sown in the spring, and the oil content in the seeds at the lowest sowing rate was 43.8%. It was found that the seed oil content was 43.7% when the sowing rate was 6 million seeds per hectare, and 43.6% on average in the variants with 8 million seeds per hectare, and 42.8% at the highest sowing rate, and the oil content decreased by 0.1-0.2 and 1% as the sowing rate increased.

The Crystal variety of camelina sativa sown in the summer had a seed oil content of 45.6% at the lowest sowing rate. It was found that the seed oil content was 45.4% when the sowing rate was 6 million seeds per hectare, and 44.6% on average in the variants with 8 million seeds per hectare, and 42.8% at the highest sowing rate, and the oil content decreased by 0.2-1 and 2.8% as the sowing rate increased.

## CONCLUSION

Sowing camelina sativa varieties at different dates and rates affected seed quality, and as the seed rate increased, the amount of oil in the seed decreased. In particular, depending on the seed rate in the autumn period, it was found that the Kristall variety

decreased by 0.7-0.9 and 1%, in the Karat variety by 0.2-0.4 and 0.5%, in the Penzyak variety by 0.5-1.6 and 2%, when planted in the spring by 0.1-0.2 and 1%, and when planted in the summer by 0.2-1.0 and 2.8%.

## REFERENCES

1. Бемяк В.Б. Методические рекомендации по возделыванию и семеноводству рыжика. – М.: Россельхозакадемия, 2004. – 40 с.
2. Евтишина Е.В., Виноградов Д.В., Лупова Е.И., Гогмачадзе Г.Д. Влияние сроков посева и норм высева на урожайность семян рыжика ярового в условиях Рязанской области // АгроЭкоИнфо. – 2018, №3. – [http://agroecoinfo.narod.ru/journal/STATYI/2018/3/st\\_349.doc](http://agroecoinfo.narod.ru/journal/STATYI/2018/3/st_349.doc).
3. Семенова Е.Ф., Буянкин В.И., Тарасов А.С. Масличный рыжик: биология, технология, эффективность, – Волгоград, 2007. – 82 с.
4. Vinogradov D.V., Konkina V.S., Kostin Y.V. Developing the regional system of oil crops production management // Journal of Fundamental and Applied Sciences. – 2018. – 10(7S). – P. 289-302.
5. Прахова Т.Я. Рыжик посевной (*Camelina sativa* (L.) Crantz): монография. – Пенза: ПГСХА, 2013. – 208 с.
6. Shpaar, D. and others. Rape and Bird Rape (Growing, Harvest, Use) / Endorsed by D. Shpaar. – M.ID JSC “DLV Agrodello”, 2007. – 320 p.
7. Chengci Ch., Bekkerman A., Afshar R.K., Neill K. Intensification of dryland cropping systems for bio-feedstock production: Evaluation of agronomic and economic benefits of *Camelina sativa* // Industrial Crops and Products. — 2015. — Vol. 71. — P. 114-121.
8. Прахова Т.Я. Рыжик масличный: биология, продуктивность, технология // Вестник Алтайского государственного аграрного университета. — 2013. — № 9 (107). — С. 17-19.
9. Dala tajribalarini o'tkazish uslublari – Toshkent. 2007. 180 b.
10. Доспехов, Б.А. Методика полевого опыта / Б.А. Доспехов. М.: Агропромиздат, 1985. – 351 с
11. Методика государственного сортоиспытания сельскохозяйственных культур. Зерновые, зернобобовые, масличные и кормовые культуры. – М.: Колос, 1971. – 240 с.