# SOME ASPECTS THE INFLUENCE OF SOWING TIME OF WINTER OLISSED RAPE PRODUCTION IN THE CONDITIONS NORTH- EAST BĂRĂGAN

## Luxița RÎŞNOVEANU<sup>1</sup>, Lucian BUZDUGAN<sup>2</sup>

*E-mail : dnastase78@gmail.com* 

#### Abstract

Research by the 2004-2010 in the agricultural area north-east Barãgan, highlight the fact that rape sowing time factor to be considered limiting of the technology of great importance to this culture, a disturbance of optimal growth and development of this plant.

Frost resistance of rape plants are closely related to planting dates with complex implications in the biology of their (production, leaf area, leaf area index, , number pods per plant, dry matter harvest index, etc.).

Optimal sowing time of winter rape to the north - east Baragan is between 5-10 september the point of view so productive and biologically. So sowing too early too late and especially production determine significant drawbacks.

Key words: winter rape, sowing date, productive and biological structures

Rape currently occupies a place in the world economy particularly important as a source of vegetable oils, used both in food and in industry (Bîlteanu 2003; Rĩşnoveanu, 2010; Buzdugan, 2006).

Acheieving high yields of winter rape is based on the application of modern cultivation technologies and performance. Links between technological influences on production and quality level of production is sowing time is essential in creating safe and constant production of winter rape (Berea, 1999; Muntean, 2008; Rīşnoveanu, 2010; Jenkins, 1986; Moore, 1995).

The sowing too early and especially later browsing process does not cause hardening conditions of this culture. In both cases the resistance to frost and other optimal growth and development of winter will be much reduced. (Rīşnoveanu, 2010; Muntean, 2008; Buzdugan 2006, Leto, 1995).

Age sowing is the limiting factor of great importance in the north-east Baragan The sowing too early and too late cause significant decreases in production in some years reaching compromise its father (Rīşnoveanu, 2010; Buzdugan, 2006).

### MATERIAL AND METHOD

In 2004-2009 were carried out a series of studies on the influence of sowing time on the production and other productive structures that

condition the development of secure and constant production of winter olissed rape in north-east Baragan conditions: *1 september, 5 september, 10 september, 15 septenbrie, 20 september, 1. october* 

These variants have made a series of tests and observations on: production per unit area, leaf area index, index of harvest, number of pods, number of leaves, number of branches, the density at harvest, plant height amount of dry matter accumulated.

Of those in this scientific report will refer only to: production and structure, the surface leaf, leaf area index, number silicve, harvest index, the amount of accumulated plant dry rape.

In this culture specific pest using Calypso, 0.1 I / ha, applied uniformly to all variants studied.

Scientific data obtained were statistically calculated using analysis of variance, comparing multiples (Newman Keuls), regressions and correlations (MSTAT-C statistical software, SAS / SAT, PASW).

### **RESULTS AND DISCUSSIONS**

Presents search results from research in 2004 - 2008 (*fig. 1*) shows that the optimum time of sowing in the north-east Baragan is located during 5- 10 september when making the biggest increase in productivity of rape (34,23 % of average experimental) variables are at the same level of statistical significance. At the same time has the highest production achieved statistically

<sup>&</sup>lt;sup>1</sup> Research Station for Agricultural Development Brãila

<sup>&</sup>lt;sup>2</sup> TCE 3 Brazi-Neamţ, Insula Mare a Brãilei branch

insurance, the coefficient of variation of 6,34% nesemificativ, observing thus the stability in time of sown winter oilseed rape production of these data.

A too early sown crop determines minuses of 10,1%, while taking place and increase the coefficient of variation at 10,33% of productive instability.



Figura 1 Influence sowing time of winter oilssed rape production Brãila 2004-2010

Delayed sowing after 10 september already has major negative effects reflected by decreasing by 27.8% and 12.3% significant productive instability.

Sowing of winter rape production after 15 september to meet the significant decrease of the average 7,3% and 25,8% compared to experiment sown optimum sowing time. The stability of this era productive while sowing is significant lower,

An even more pronounced decrease of rapeseed harvest is found to delay sowing after 20 september, when a decrease of 39,3%, widening and instability in time of harvest to 27,1%, which indicates very important role of the time sowing this plant in the growth and development.

Sowing after 1 october proves to be the worst time of sowing as a decrease production of 55,5% compared to optimal variant, and 41,3% from the average yield experiment, coefficients of variation were significant 14,9%.

This sowing time does not allow the plant to prepare for winter conditions in the north-east Bărăgan also ensures no accumulation of reserve substances for winter and resumed covering vegetation in the spring. Analyzing the influence of sowing time on the formation of rapeseed production in the northeast Baragan (*fig 2.*), Using frequencies can be seen that the first period of sowing (1 september) is achieved production of over 3,0 t / ha in percentage 59, the rest stood to the lower production levels of 2,0-3,0 t / ha. (41%)

Age optimum sowing, 5 september , provides production above 3,0 t / ha in 100%, of which the above 4 t / ha in 65% of all these.

Sowing after 15 september resulted in reduced yields above 3,0 t / ha at a rate 46%, while the remaining production from 2,0 to 3,0 t / ha is the 55% yield achieved at this time of sowing.

Delay much of the time of sowing 1 october causes only small yields unsatisfactory in terms of productive and economically under 3,0 t / ha, yields of between 1,0-2,5 t / ha are found in 90% of the total yields obtained at this time of semantics.

There are other biological structures and production of winter rape are significantly influenced by sowing periods, equally or even more than the seed production.



Figura 2 Influence time of sowing on the structure production of winter oilseed rape Brãila 2004-2010



Figure 3 Influence time of sowing the number of branche plants the winter rape Brãila 2004-2010

A major component in the formation of production constitutes the number of branches on the plant to form, with direct influence on plant growth and development and finally the production (*fig.* 3). Influence of sowing time is crucial in determining the number of branches per plant rape and finally the formation of production.

The highest values, statistically, it realized an when sowing takes place between 1 September rape-10septembrie, with an increasing trend from age 5 to 10 September sowing.

Under delayed sowing by 15 september to register significant weaknesses in terms of ramifications on the strains of rape. Stability while the number of branches per plant, given by the coefficient of variation is insignificant, showed superiority ages sowing, 1 september to 10 september , compared to late sowing after 15 september, when it reaches values of 4,7 -26, 5%, statistically significant.

Number of leaves of rape rape plants is significantly influenced by sowing time. It can be

seen that the number of leaves formed on the plant is sown up in the era of September 5 to 10 september. By delaying sowing after 15 september the number of leaves decreased significantly, leading to a reduction of the assimilation surface of plants (*fig. 4*)

Also during established as optimal number of leaves on the plant variation is below materiality levels, which ultimately contributed to the development of safe and stable production. Delayed sowing after 15 september , causes a sharp increase, significantly, the coefficient of variation (11,9-20,9%).



Figure 4 Influence time of sowing on number of leaves on plants in winter oilseed rape Brãila 2004-2010



Figure 5 Influence of leaf surface time of sowing on winter oilseed rape (Braila 2004-2010)

Leaf surface is such a structured activity necessary plant nutrient uptake of rape, which is

strongly influenced by sowing time with the device special role in formation of plant foliar essential plant growth and development.

Regarding the photo-system component can be said that sowing time of 5 to 10 september is the largest determnă active leaf area. The sowing too early, especially the late results minuses of photosynthetic capacity of plants (fig. 5).

In support of the above come and study this component changes over time. Thus sowing too late, after 15 September, reveals a dramatic increase in the coefficient of variation (22,8 - 45,9%).

Leaf area index (fig. 6) gives us very useful information on photosynthetic capacity of photosystem, including its productivity.

Sowing of winter rape in the period September 1 to 10 determines the highest values of this indicator physiological lock-level standing at statstic. As periveste stability while leaf area index shows that on 1 september if it is significant variation coefficients (10.5%) But in periods of sowing from 5 and 10 septembtie time variation in leaf area index is insignificant. 9,7% and 7,4%

Sowing too early or too late causes significant changes in this indicator, if the decrease is slower when the earliest ages of sowing, sowing later eras most lowers sudden leaf area index.



Figure 6 Influence time of sowing of leaf area index in winter oilseed rape Brãila 2004-2010



Figure 7 Influence time of sowing on the production of dry matter in winter oilssed rape Brãila 2004-2010

In the production of dry matter (fig. 7) found that sowing between 5 september and 10 september proves to be optimal in terms of build them with most insurance statistics. Late sowing results in significant decreases the amount of dry matter synthesized by plants of rape, with 30,1 to 85,3%.

This trend is confirmed and its variation during the research were made. The optimum time of sowing September 5 -10 september there was a dry stability achieved (coefficient of variation of 8.3-8.8%), unlike the later periods when there is significant value of this coefficient (24.4-38.8%)

Number of pods is formed from rape is closely related to time of sowing this planste (*fig.* 8.) Sowing period 5 -10 september proves best in

what is the number of pods that form in the plant's production complex, thus achieving the highest production values of this component increases from 25,0 to 25,2 with average silicve to exterimentului (111,8 silicve)

Sowing after 15 september results in significant decreases in the number of pods, this having negative effects on seed production. Optimum sowing period adopted is confirmed and stability while the number of pods given by the coefficient of variation below 10%, within errors (8.2-8.3%). Delay in sowing after 15 semptember stability of this element significantly reduces productivity, reaching values of 26,1 to 38,9% correlation coefficient



Figure 8 Influence time of sowing on the number pods to winter oilseed rape Brãila 2004-2010



Figure 9 Influence time of sowing of harvest index to winter oilseed rape (Brãila 2004-2010)

Harvest index, ratio of seed production and plant total biomass achieved, is influenced by time of sowing, growing element of technology that puts the plants during vegetation in different environmental conditions (fig 9).

Ages early sown crop determines the highest index, while having the largest insurance statistics. The sowing is delayed more than rape as this index is lower, with negative repercussions on the final production.

Stability in time of the index is also strongly influenced by sowing time. Thus the ages of 1 september - 10 september sown settled insignificant coefficients of variation (8.2 to 9.4%), unlike the later sowing 15 september to 1october that determine variations in time of the index much higher (15.6 to 18.4%), with negative repercussions on the productivity of this crop.

### CONCLUSIONS

Sowing time winter oilssed rape to be considered limiting technological factor of utmost importance for this crop in the north-east Baragan

Frost resistance of rape plant is closely related to time of sowing with the complex implications of their biology.

Age optimum sowing of winter rape to the north - east Baragan is between 5 to 10 september, both legally and biologically efficiently.

As the late sowing rape occurs Reduce the number of leaves per plant, leaf area, leaf area index, dry, silicve number per plant, harvest index values comprise between 8,4-59,6%

#### BIBLIOGRAPHY

- Berea, N., 1999 The influence of time of sowing in some genotypes of winter rapeseed oil in the forest steppe Moldovan, Agro-plant production problems theoretical and practical. vol XXI.
- **Buzdugan, L., 2006** Winter rape culture of the future. Agricultural profit 28.
- Goff, D., Everitt, B. 2009 SAS / SAT Statistical Analysis System pro 9, Hadbrouk Statistical Analysis Using SAS SAS Institute Inc. Carv. NC.
- Schulz. R.R. 1995 Plant development and vield of oilseed rape as influenced by time of sowing, seeding rate and Variety, In: Proc.Intern. Rapesssd Cingr. 9th Cambridge, UK.
- Jenkins. PD. Leitch. MN. 1986 Effects of sowina date on the arowth and yield on winter oilseed rape, J. Sci. (Camb) 105
- Kinner, P.R., Gray, A.C., 2009- Statistical PASW arand back 18. SPSS Inc.NASDOQ. SPSS, Stanford University.
- Leto, C. Locust bean. A.. Cibella. R.. Trapani. P.. 1995 - Influenza dell'era di della varietal seed phenological su aspetti e olio colza productive in Semina del autunnale. Rev di Agronomy. 29.
- Menhdham. N.J. Shipwanv. P.A. Scott. R.K. 1981 -The effects of delaved sowing and weather on arowth. development and yield of winter oilseed rape. J. Agric. (Camb), 96.
- Moore, K.M. Guv. O.S. 1997 Aaronomic response of winter rapesssd to rate and date of seeding, J. Aaron. 89
- Muntean. L.S. Cernea. S., Morar. G., Duda. M.M. Vârban D.I, Muntean, S. 2008 - Plant growing, Ed academicPres. Clui-Napoca.
- Nissen. O., Russell. F., 1993 Software program for design, management, and analysis of agronomic research experiments. User's quid to Matthat-C, Michigan State University.
- **Rĩşnoveanu. Luxita. 2010** The influence of factors on the population of pests phyto winter oilseed rape in the Northeast Baragan, USAMV Bucharest,PhD Thesis.