

Benefits of variety Kornelija for farmers

Hulless barley variety *Kornelija* is a Latvian-developed spring crop that offers several significant benefits to grain growers. The variety ripens very early, depending on the meteorological conditions of the specific year **vegetation period, days from sowing to maturity, is 78-92 days**. It reaches its highest stage of maturity almost a week (4-6 days) faster than another Latvian hulless barley variety "Irbe", and 7-10 days faster than the covered barley variety "Ansis", which is widely grown in Latvia (ref. to Figure 1).

Field trials in the dry meteorological conditions of grain crops year 2018 (specifically, during first half of the vegetation period) have proven ability of the barley variety *Kornelija* to provide higher tolerance to dry conditions compared to other grain varieties popular in Latvian grain production. Growth of the early variety *Kornelija* and its plants after sowing in the spring was faster, therefore it was able to use soil moisture more efficiently and, as a result, showed a relatively good tillering capacity and hence the density of the sowing.

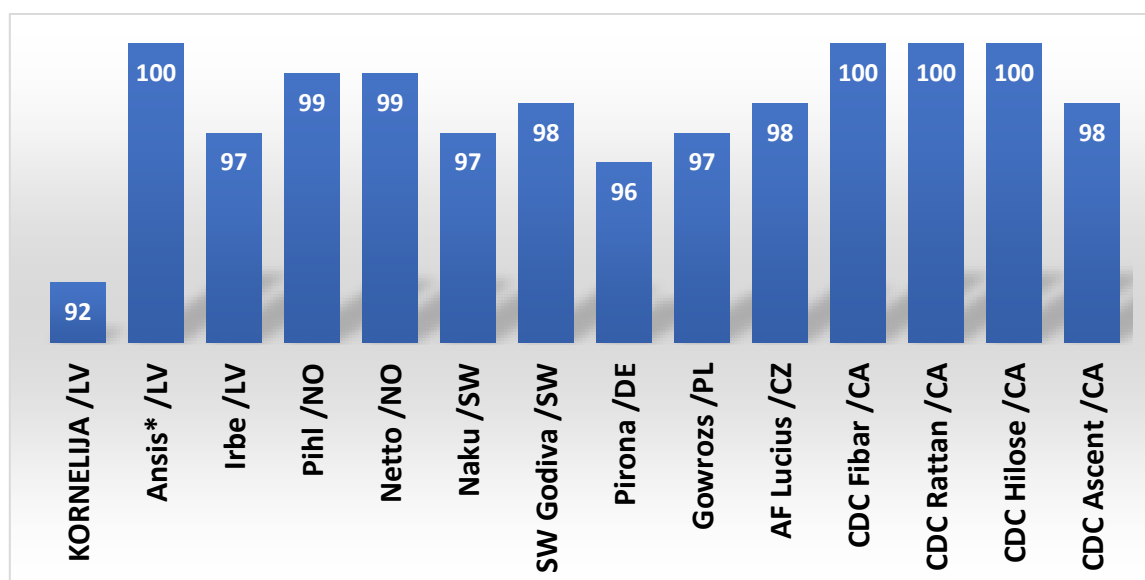


Illustration 1 Comparison of vegetation periods for different hulless barley varieties, data of 2019 at AREI Stende Research Centre, Latvia; * – Covered barley

The relatively short vegetation period makes it possible to harvest *Kornelija* barley relatively early, at the end of July/early August, when the highest grain quality has been achieved. Thus, this variety can be a good precrop for winter crops, where timely harvesting is crucial to ensure soil preparation for winter crops. Considering that winter wheat and winter rape are widely grown in Latvia and other European countries, the introduction of early spring crops would ensure the desired crop rotation as well as help in meeting the greening requirements on agricultural production.

The results obtained so far confirm that the variety *Kornelija* has a genetically determined potential to produce elevated protein and β -glucan content in grains, thus **it can be grown at relatively lower doses of mineral nitrogen** (with 60 kg/ha coverage of mineral N), **with the improved biochemical quality of the grain, it also provides well for organic farming system**. This circumstance is important for the potential use of the variety in the organic farming system and in production of its products. The practice of environmental eco-friendly farming practices is gaining recognition, and the variety's

characteristics make it possible to obtain dietary grains in an environmentally friendly manner, both in conventional and organic farming systems.

Upon identifying the interest of seed and grain growers in the choice of variety *Kornelija*, a conclusion has been made that farmers are generally open to the introduction of new varieties into production, with demand from processors being a determining factor. Although the crop yield potential of variety *Kornelija* is comparatively lower than that of some other cereal species, an appropriate purchase price (taking into account the high quality content and characteristics of the grain) will be able to ensure the economic yield per hectare for grain growers, equivalent to the gross yield per hectare of spring wheat. (ref. to *Table 1*).

	<i>Kornelija</i> (N60)	<i>Kornelija</i> (protein 17.5 %)	"Irbe"	Hulled barley	Oat	Spring wheat	Winter wheat
Parameters:							
Gross yield, t/ha	3,50	3,50	4,00	4,20	3,60	4,80	6,50
Net yield, t/ha	3,50	3,50	4,00	3,70	2,74	4,80	6,50
Protein yield, kg/ha	451,5	526,75	412,80	404,54	294,12	495,36	614,9
Beta-glucan yield, kg/ha	157,85	165,55	165,12	148,09	95,98	33,02	44,72
Income							
Mean price, EUR/t	168	178	154	130	172	152	152
Income, EUR/ha	589	622	614	545	619	727	985
Costs							
Seed, EUR/ha	72	72	72	53	42	51	55
Fertilizers, EUR/ha	61	77	72	72	61	114	180
Plant protection products, EUR/ha	47	47	47	47	8	56	83
Agrotechnical works, EUR/ha	266	284	266	266	228	284	303
Grain cleaning, EUR/ha	19	19	22	23	20	26	35
Grain drying, EUR/ha	77	77	88	92	79	105	142
Transport, EUR/ha	9	9	11	11	10	13	17
Total costs, EUR/ha	552	585	577	564	447	648	816
Gross profit, EUR/ha	37	37	37	-19	172	79	169
Aid backing, EUR/ha	164	164	164	164	121	121	121
Gross profit including aid payments, EUR/ha	201	201	201	145	293	201	290

Table 1 Kornelija-variety, comparison of gross barley yield with other cereals

Calculations show that, despite lower productivity, variety *Kornelija* at a sale price of EUR 168 to 178 per tonne, **provides a competitive gross margin**. Only the oats and winter wheat have the highest gross margins of the cereal species considered. Field studies to improve growing techniques of the hullless barley variety *Kornelija* and to find the most appropriate solution to balance production costs and grain quality will continue in years 2019 and 2020.

More information can be found in the Research section.

Kornelija team