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TIME OF ACCESS OF GREEN MASS TRITICALE IN WINTER DEPENDING ON THE VARIETY AND SEEDING TIME

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Abstract. *This article considers the influence of sowing dates and biological features of the variety rates of phenological development of triticale plants. It was found that among the studied varieties, the earing phase occurs earlier in varieties AD 3/5, AD 44 and ADM 9, which are characterized by fast passage of the interphase tube-earing period for 17 – 19 days, depending on the sowing period. In the late-ripening variety Polisky 29 this period lasts 23,0 – 24,7 days.*

Key words: *winter triticale, sowing period, variety, mass, interphase period.*

Introduction. For fodder purposes, the vegetative mass of winter cereals (rye, wheat, triticale) is used in the period from the phase of exit into the tube to the phase of full earing [1, 2]. At this time, the green mass according to zootechnical assessment is the most balanced, complete and highly nutritious. However, not only crops, but also their varieties differ significantly in growth and development, dynamics of onset and duration of harvesting, which is especially important when planning the feed conveyor. Significantly affects the course of production processes and the shift of calendar sowing dates.

Based on this, the research was supposed to study and develop the technological basis for increasing the productivity of different early-maturing varieties of winter triticale.

Materials and methods of research. Field research was carried out at the "Agronomic Experimental Station" of the NULES of Ukraine on typical low-humus chernozems. The humus content in the arable layer is 4.34 – 4.68%, pH is 6.8 – 7.3. The object of research - winter crops: wheat Poliska 90 (control), rye Kyiv feed (control) and triticale (AD 3/5, AD 44, ADM 9, Poliskiy 29, ADM 11, AD 52), sown in 5 calendar dates (from August 25 to October 5). The predecessor is corn for silage.

Research results. It is known that the growth and development of crops are largely determined by varietal characteristics, sowing dates and weather conditions [1]. In the course of research to study the basic patterns of formation of phytocenoses of winter triticale, it was found that crops of different sowing dates differ significantly in the rate of phenological changes during the spring-summer vegetation. The significance of such changes was determined by the peculiarities of the weather during the years of observations.

According to the obtained results, the dates of occurrence of certain phases of plant development and the intensity of the phenological phases are largely determined by the date of resumption of spring vegetation [2]. Early restoration of spring vegetation creates better conditions for growth and development of plants during the whole spring-summer period of plant ontogeny, later – plants get into the conditions of a long day and fast rise in air temperature, which causes the phenomenon of phenoexpression in their development. .

According to A. P. Bilytyuk [1] in the early sowing of certain phases of growth and development of triticale plants occur earlier than in the late, which was observed in our studies. Depending on the variety, the tubing phase in the early sowing period occurred in 34.0 – 38.3 days after the resumption of spring vegetation, in the late - in 38.3 – 44.0 days. In rye, the duration of this period, depending on the age of crops, was 25.3 – 29.7 days, in wheat - 39.7 – 45.0 days.

According to the different rates of phenological development, the calendar dates of the onset of the tubing phase were also mentioned. On average, depending on the variety and weather conditions of spring vegetation, in the tubular phase, early trikale crops came into force on April 24 – May 14, late – from April 26 to May 21. The tube phase on rye crops begins from April 12 to May 13. Wheat for this nation of the tube phase occupies intermediate positions between the studied varieties of triticale.

At the initial stages of spring-summer vegetation, the most intensive development was characteristic of varieties AD 3/5, AD 44 and ADM 9, which allows their use in the feed conveyor system immediately after the use of green mass of rye.

The onset of the earing phase in winter crops was also determined by the species and varietal composition, sowing period and weather conditions during the growing season (Table 1).

1. The onset of the earing phase in winter-age plants of winter triticale, depending on varietal characteristics

Species, variety	Sowing period				
	25.08.	5.09.	15.09.	25.09.	05.10.
Rye *(control)*	07.05–18.05	07.05–19.05	09.05–20.05	10.05–20.05	10.05–21.05
Wheat *(control)*	24.05–29.05	27.05–01.06	30.05–02.06	01.06–05.06	03.06–07.06
AD 3/5	19.05–26.05	18.05–27.05	19.05–28.05	20.05–29.05	22.05–29.05
AD 44	17.05–24.05	18.05–26.05	18.05–28.05	19.05–28.05	20.05–29.05
ADM 9	18.05–25.05	17.05–29.05	18.05–31.05	19.05–31.05	21.05–02.06
Polisky 29	27.05–01.06	30.05–02.06	01.06–03.06	01.06–03.06	03.06–04.06
ADM 11	25.05–27.05	26.05–28.05	28.05–30.05	30.05–01.06	01.06–02.06
AD 52	25.05–31.05	26.05–01.06	27.05–02.06	28.05–03.06	30.05–04.06

Thus, if in the early period of sowing crops, depending on the variety, entered the earing phase from May 17 to June 1, then in the late – during May 20 – June 4. In winter rye this phase occurred on May 7 – 21, in wheat much later - on May 24 – June 7. Compared with the tubing phase, the difference between crops of different sowing dates by the date of the earing phase within each variety was significantly reduced. The same pattern was observed in rye and wheat. However, in years characterized by high air temperatures against the background of insufficient rainfall, the weak root system of late-sowing plants is unable to provide the plant body with sufficient nutrients and moisture. As a result, there was a noticeable lag in the development of October crops.

On average, over the years of research, depending on the sowing date and variety of varieties, the duration of the interphase period of tubing-earing on triticale crops was 17.7-23.0 days. In general, the shortest specified interphase period was found in plants of late sowing dates, which indicates the close-stage development of such crops. Accordingly, the rapid rate of phenological changes led to the formation of low-power grass, and hence insufficient growth of vegetative mass.

Among the studied varieties, early-maturing AD 3/5, AD 44 and medium-ripe ADM 9, which are characterized by rapid passage of the interphase period of tubing-earing for 17 – 19 days, depending on the sowing period, enter the earing phase earlier. In late-ripening varieties ADM 11 and AD 52 this period increased to 20.7 – 23.3 days and the longest was in the variety Polisky 29 – 23.0 - 24.7 days.

Conclusions. Thus, different age crops differ significantly in the rate of phenological development during the spring-summer growing season. The significance of such differences is determined by the peculiarities of the weather during the growing season and the biological characteristics of the varieties.

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