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THE FORMATION OF SPRING WHEAT VARIETIES RESISTANT TO BROWN RUST DISEASE

Abstract. Kazakh-Siberian system (KASIB) of the spring wheat adaptation has been established by CIMMYT enterprise (Mourgunov and others, 2000) and unites 21 scientific selective institutions, and combines wheat area over 20 mln. hectares. Over 600 cultivars samples of common and durum wheat were examined as a result of the Kazakh-Siberian system (KASIB) cooperation of the spring wheat adaptation. There were determined the most high-yielding samples and samples with high resistance to effect of brown rust

Key words: KASIB, spring wheat, brown rust, stem rust, disease.

Spring wheat grain is a significant object of our export. The grain of spring wheat is mainly necessary for bread, cereal, macaroni production and for export. But to a large extent, as a result of incorrect plants growing practices or cultivars formation, wheat grains lose the valuable qualities and being used only for technical and feeding purposes. In order to form high-quality, stable growth of spring wheat grains, an extensive measure should be carried out. Nowadays, due to the fact of dangerous brown rust dispersion, and to reveal grains which have a resistance to brown rust, there has been established the Kazakhstan-Siberian System (KASIB) of the spring wheat adaptation which unites 21 scientific selective institutions [1]. The Kazakhstan-Siberian System (KASIB) of the spring wheat adaptation carried out the research of 49 varieties of spring wheat in order to reveal varieties which are resistant to brown rust in the period of 2013-2014 in Aktobe Agricultural Experimental Station, "Omsk State Agrarian University, Chelyabinsk Agricultural Scientific Research Institute, Karabalyk Agricultural Experimental Station, in the scientific-production firm "Fiton" and in testing institutions. In 2013, 49 kinds of varieties showed high resistance to brown rust at the Aktobe agricultural experimental station, all 49 varieties were up to 5-20%. It is a very good indicator. In 2013, during the cultivation of 49 varieties of spring wheat, the weather conditions were unfavorable for brown rust, on average, during the growing period, the amount of precipitation reached 0.80 mm, and the average day temperature was + 28º. In 2014, 0-10% of 49 varieties of spring wheat were resistant to brown rust, the amount of precipitation was 0.79 mm, average temperature of the day +30 º. In 2013, in Omsk State Agrarian University, from 49 varieties only 15 varieties were resistant to brown rust with an interval of 0-20%, and 25-100% of 34 varieties contracted disease of brown rust. In 2014, 18 from 49 varieties, 0-20% were resistant to brown rust, and the rest 31 varieties, 30-100% contracted disease of brown rust. In 2013, on the experimental area of the Chelyabinsk Agricultural Scientific Research Institute, 36 of 49 varieties, 0-20% were resistant to disease, and the rest 13 grades, 30-70% contracted disease of brown rust. In 2014, 3 from 49 varieties in the range of 0-10% were resistant and the rest 46 varieties within 30-100% were infected with brown rust. In 2014, in the Karabalyk agricultural experimental station, 8 from 49 varietis of spring wheat, 20% were resistant to disease, the rest 40-100% of 41 varieties were deseased. In 2014, in a research-and-production firm "Fiton", 0-20% of 9 varieties were resistant to brown rust, and 40-100% of the rest 40 varieties were deseased (table).

Manifestation of the brown rest in the research period (2013–2014)

Brown rust, %							
	Aktobe		Omsk		Chelyabinsk		Karabalyk
Variety	2013	2014	2013	2014	2013	2014	2014
Steppe 1413	0	0	80	40	50	100	80
Steppe 1414	0	0	15	15	20	60	40
Steppe 1422	0	0	15	10	20	100	60
Lyazzat	10	5	80	80	40	100	80
GVK 2031-13	5	5	100	100	40	100	40
GVK 2077-11	10	10	100	90	40	100	80
Lutescens 740	0	0	20	30	40	90	60
Lutescens 811	0	0	15	70	40	100	60
Lutescens 22	10	5	100	90	60	100	80
Lutescens 36	5	5	80	90	70	100	80
Lutescens 1519	0	0	100	90	70	100	100
Lutescens 1669	5	5	100	70	20	100	80
Lutescens 1764	0	0	80	10	20	100	100
Lutescens 12/93-01-4	0	0	80	80	30	100	100
Lutescens 16/93-01-8	0	0	100	80	30	100	60
Lutescens 25/93-01-2	5	5	100	90	50	100	100
Lutescens 122	0	0	50	30	50	100	100
Lutescens 1101-12	10	5	30	50	20	80	40
Fiton 82	15	10	20	30	10	90	80
Fiton C-54	0	0	0	10	0	30	40
Ecada 148	0	0	0	0	0	0	20
Celinnaya	10	5	70	70	20	100	60
Asyl Sapa	15	10	30	80	10	100	80
Standard early	0	0	80	70	1	100	100
Standard middle	0	0	50	70	1	70	80
Standard late	0	0	80	60	20	100	100
In memory to Aziyev	10	0	50	80	20	100	100
Terce	0	0	50	10	20	100	80
Astana 2	10	5	50	60	5	100	80
Omsk35	15	10	70	60	20	90	100
Saratov29	0	0	70	70	20	100	100
Tobol	0	0	70	60	20	100	40
Altai reaper	10	5	0	0	1	100	20
Lutescens 665/1	5	5	30	40	20	70	60
Lutescens R - 23-18	10	5	0	20	20	100	60
Lutescens R - 66 B	0	0	50	60	20	100	80
Lutescens K - 78-1	0	0	50	60	10	100	80
Lutescens 205/03-1	15	10	40	0	1	50	
Lutescens 220/03-83	10	5	0	5	0	0	10
Lutescens 555/01-10-1	0	0	25	30	20	100	60
Siberian 17	20	10	10	5	5	100	20
Lutescens 1147	15	10	0	0	1	30	20
Lutescens 126-05	0	0	0	20	5	30	20
Lutescens 128-05	0	0	0	0	5	50	20
Sigma	0	0	25	10	20	90	40
Lutescens 7/04-26	0	0	20	15	20	100	20
Lutescens 141/03-2	10	5	0	20	1	90	40
Chelyaba early	0	0	0	40	20	90	40
Ural cuckoo	15	10	0	0	0	10	40

Brown rust (Puccinia triticina) is widly spread among the spring wheat in the north Kazakhstan and it is very destructive disease. The most effective means of brown rust control is the formation of resistant varieties. For this purpose, we have formed the varieties that are resistant to brown rust, and in the future the Kazakhstan-Siberian System of the spring wheat adaptation will be aid to achievement of profitable results and cooperation with the production of the varieties resistant to brown rust in order to facilitate the work of the institutions that form resistant varieties to this disease.

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ЖАЗДЫҚ БИДАЙДЫҢ ҚОҢЫР ТАТ АУРУНА ТӨЗІМДІ СОРТ ҮЛГІЛЕРІН СҰРЫПТАУ

Аннотация. Жаздық бидайды жақсарту Қазақстан-сібір желісі (КАСИБ) СИММИТтің бастамасы бойынша құрылды (Моргунов және т.б., 2000) және 21 ғылыми селекциялық мекемелерді байланыстырады, бидайдың егістік алаңдарының 20 млн. гектардан астам ареалын біріктіреді. Іс-әрекет барысында жаздық бидайды жақсарту Қазақстан-сібір желісі (КАСИБ) егістіктерінде жаздық жұмсақ және қатты бидай сұрыптарының 600-ден астам сұрыптық үлгілері қарастырылды. Барынша өнімділікке ие үлгілер мен сондай-ақ қоңыр татқа барынша төзімділік көрсеткен үлгілер айқындалған болатын.

Түйін сөздер: КАСИБ, жаздық бидай, қоңыр тат, сабақ тат, аурумен зақымдану.

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ФОРМИРОВАНИЕ ПРИЗНАКОВОЙ КОЛЛЕКЦИИ ЯРОВОЙ ПШЕНИЦЫ ПО УСТОЙЧИВОСТИ К БОЛЕЗНЯМ

Аннотация. Казахстанско-Сибирская сеть по улучшению яровой пшеницы была создана в 2000 году в результате сотрудничества между Научно Исследовательским Институтом по селекции пшеницы Северного Казахстана и Западной Сибири. Целью Казахстанско-Сибирской сети по улучшению яровой пшеницы является поиск стабильно высокоурожайных и высококачественных форм. Наиболее эффективная мера борьбы с бурой ржавчиной является создание устойчивых к ним сортов путем скрещивание устойчивых доноров с местными сортами и отбор из гибридных популяций ржавчиноустойчивых форм. Повышение эффективности яровой пшеницы в Северном Казахстане и Западной Сибири посредством обмена новыми сортами и селекционным материалом, а также координированной оценкой болезней, обмена информацией, организации встреч и дискуссий. В настоящее время Казахстанско-Сибирская сеть по улучшению яровой пшеницы объединяет 21 программ по селекции в Казахстане и России, которые проводят селекцию пшеницы на площади более 20 млн. га.

Ключевые слова: КАСИБ, пшеница, яровой, Казахстан, Сибирь, сеть.

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